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Freshwater Mussel Inventories at Bluestone National Scenic River, New River Gorge National Park and Preserve and Gauley River National Recreation Area

Final Report

Natural Resource Report NPS/NRSS/IMD/NRR—2023/2604



ON THE COVER
The Gauley River in Gauley River National Recreation Area.
NPS / DAVE BIERL

Freshwater Mussel Inventories at Bluestone National Scenic River, New River Gorge National Park and Preserve and Gauley River National Recreation Area

Final Report

Natural Resource Report NPS/NRSS/IMD/NRR—2023/2604

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Executive Summary

Qualitative timed search surveys for freshwater mussels were conducted at 30 sites in the New River National Park and Preserve (NERI), 24 sites in the Gauley River National Recreation Area (GARI), and nine sites in the Bluestone National Scenic River (BLUE). When a mussel density of greater than one mussel per square meter was encountered, a semi-quantitative transect survey was conducted. Mussel presence was detected at 22 of 30 sites in NERI, zero of 24 sites in GARI, and one of nine sites in BLUE. Transect surveys were conducted at 15 sites in NERI. No transects were conducted at GARI or BLUE.

All NERI survey efforts combined to detect six mussel species. Qualitative surveys in NERI found 1,126 mussels of five species. Transect surveys in NERI combined for 1,071 mussels of five species. A single individual of one species (*Alasmidonta marginata*) was encountered only while returning mussels to the stream. Mussel density encountered on transects in NERI varied from 0.12 to 4.58 mussels per square meter. The mussel community encountered was heavily dominated by *Actinonaias ligamentina*, which comprised over 85% of mussels found. Mussels encountered in NERI appeared to be similar to historic surveys, though some species historically present were not encountered. Very little historic data is available for the Gauley River and historic mussel populations are assumed to have been sparse. Only four individuals of one species (*Cyclonaias tuberculata*) were found in BLUE. Mussel populations appear to have declined drastically in the Bluestone River based on surveys conducted during the 1980's to present day.

Introduction

Copperhead Environmental Consulting, Inc. (Copperhead) was contracted by the National Park Service (NPS) to conduct mussel surveys within the New River Gorge National Park and Preserve (NERI), the Bluestone National Scenic River (BLUE), and the Gauley River National Recreation Area (GARI) in Fayette, Raleigh, Summers, Mercer, and Nicholas counties, WV. Copperhead surveyed the streams within the 2022 mussel survey season between 1 May and 1 October as defined by the West Virginia Mussel Survey Protocols (WVMSP) released in 2022.

Park Resource Management Issues

The NPS identified their park resource management issues as follows in the "request for quote" for the project: "The inventory and report compiled from this project will directly inform ongoing park planning processes and ensure that park staff have adequate information to make science-based management decisions when evaluating proposed actions which might affect natural and cultural resources, especially as they might impact rare and endangered species. Findings will directly support River Use Management Plans (RUMP) scheduled in the near future and other management planning efforts. Specific triggers for implementing management actions will be based on the presence and locations of identified target species or historic mussel beds. In general, management triggers will be those that support no net loss of existing mussel populations. The collected data will allow informed planning and management for river public accesses; appropriate animal management, including restoration and linkages to changing fish communities; and improved interpretive presentations and connections. Suggested management actions could possibly include relocating existing or proposed boat launches, altering construction techniques for proposed new construction or rehabilitation of River Access infrastructure, increased efforts to improve water quality, and signage to alert boaters of sensitive areas. Mussel inventories will also support future potential restoration efforts if needed. Restoration actions may include stocking captive reared individuals from local sources to the extent practical and following appropriate genetic testing. Other potential restoration efforts may include stocking fish hosts that are rare or now absent from these waterways and documenting and managing invasive species (Carlson et al., 2008)."

Permits

The New River, Gauley River, Meadow River, and Bluestone River are considered Group 1 streams in Fayette, Raleigh, Summers, Mercer, and Nicholas counties and were not expected to contain federally listed species (WVDNR 2022). For this reason, permitting through the US Fish and Wildlife Service (USFWS) was not required. USFWS was notified of the project in the unlikely event that federally listed species were encountered. If live or fresh dead federally listed mussels were encountered, WVDNR, USFWS, and NPS would have been notified within 24 hours. If weathered dead or fossorial shells of federally listed species were encountered, WVDNR, USFWS, and NPS would've been notified within 72 hours. Live federally listed species were to be identified, measured, sexed (when possible), photographed, and returned to the location they were found and hand placed in substrates.

Copperhead utilized two “WV Approved Freshwater Mussel Surveyors” as malacologists for this project, both of whom were permitted for mussel surveys by WVDNR: Taylor Fagin (2022.059) and Price Sewell (2022.058). WVDNR site specific permit amendments were obtained for the project (Appendix D).

National Park Service Scientific Research and Collecting Permits were required to conduct surveys within NERI, GARI, and BLUE. Permits were obtained for Taylor Fagin and Price Sewell as investigators under Kelsie Eshler (Permit #: NERI-2022-SCI-0005, GARI-2022-SCI-0002, and BLUE-2022-SCI-0003, Appendix D).

Study Area Description

The three NPS properties are located in central and southern West Virginia in Fayette, Raleigh, Summers, Mercer, and Nicholas counties. Descriptions of the three properties follows:

NERI

The New River Gorge National Park and Preserve runs from Hinton in Summers County, WV to Hawks Nest in Fayette County, WV. The park stretches approximately 90 river km along the New River and includes over 70,000 acres of land (NPS 2023a). The park offers a wealth of outdoor recreational opportunities including camping, whitewater boating, hiking, climbing, biking, fishing, and hunting in one of the most scenic areas in the eastern United States. The rugged terrain drops from peaks at an elevation of 730 meters (2400 feet) to under 300 meters (1000 feet). Contrary to its name, the New River is among the oldest rivers in the world and cut its course through Pennsylvanian and Mississippian aged sandstone, shale, and coal over millions of years. NERI sits within the Central Appalachians- Forested Hills and Mountains ecoregion. The Forested Hills and Mountains is the highest elevation portion of the Central Appalachians and has highly dissected hills and mountains with steep slopes and narrow valleys. Cliffline and waterfalls are common in the region. The high elevation creates more rainfall than surrounding areas and lower temperatures, reducing growing season duration (Woods et al. 1999).

The vegetative community is dominated by hard maples, black cherry, birch, and red oak with conifers in high, cool locations. Coal mining and natural gas wells are locally abundant and have degraded some streams in the area via acid mine drainage and siltation. Fish assemblages in the region are less diverse than the nearby Ohio River fauna, possibly due to the low buffering capacity and acidic nature of the streams (Woods et al. 1999). Fish assemblages in the New River are less diverse than the downstream Kanawha River at least partially due to Kanawha Falls which creates a barrier to upstream fish migration (Messinger and Chambers 2001).

GARI

The Gauley River National Recreation Area follows the Gauley and Meadow rivers from their headwaters through their confluence, and down to the community of Swiss. This includes a total stream length of 48 km including 39 km on the Gauley from Summersville Lake to Upper Swiss, and 9 km on the Meadow, from upstream of US 19 to the Gauley-Meadow River confluence. After leaving GARI, the Gauley River flows 17 km downstream to join the New River in forming the

Kanawha River. GARI includes almost 4,700 hectares (~11,600 acres) within the proclamation boundary, though under half of it is owned by NPS (Nadeau et. al. 2019).

As well as being one of the premier whitewater recreation destinations in eastern North America, GARI also offers a wealth of other outdoor recreational opportunities including camping, hiking, climbing, biking, fishing, and hunting surrounded by the scenic canyons and mature forest common to the park. The "Gauley Season" occurs during six weeks in the fall each year when the water release at Summersville Dam is controlled for whitewater recreation, with water being held during the night and released during the day. Releases occur for five 4-day periods (Friday-Monday) and one 2-day weekend allowing predictable, world-class whitewater boating opportunities (Ace 2023). The event also causes major fluctuations in river flow and temperature.

The rugged terrain in GARI drops from peaks at an elevation of 730 meters (~2400 feet) to under 250 meters (~800 feet) at Upper Swiss River Access. The Gauley and Meadow Rivers in GARI run through middle Pennsylvanian sandstone, shale, and coal through Mason Branch Boat Ramp and then transition to an older, lower Pennsylvanian formation. Formations in GARI are considerably younger than in NERI.

GARI sits within the Central Appalachians ecoregion in two sub-regions: the Forested Hills and Mountains to the east and the Cumberland Mountains to the west. The Forested Hills and Mountains is the highest elevation portion of the Central Appalachians and has highly dissected hills and mountains with steep slopes and narrow valleys. Cliffline and waterfalls are common in the region. The high elevation creates more rainfall than surrounding areas and lower temperatures, reducing growing season duration. The Cumberland Mountains are strongly dissected with narrow ridges and steep slopes and are largely forested. The original forest type was mixed mesophytic forest, though timber operations have changed the botanical community. Coal mining in both the Forested Hills and Mountains and the Cumberland Mountains is locally common and has contributed to stream degradation throughout much of the region (Woods et al. 1999). In the 1800's industrial pollution in the Gauley River basin caused fish kills and made the river unsafe for recreational use. The river was dubbed "The River of Ink" during this period, though in the 1900's and 2000's pressure from conservation groups and legislation helped the water quality to recover (NPS 2023b).

"The complex nature of the Gauley and Meadow River gorges, their rugged geology with associated rock outcrops, cliffs, boulder fields, boulder-choaked rapids, and scenic and wild character factor heavily in the park's significance" (NPS 2017).

BLUE

The Bluestone River within BLUE runs 16.9 river kilometers from northeast of Eads Mill (12.4 river kilometers downstream of the I-77 crossing) to the Bluestone Turnpike Trailhead (3.9 km above WV Route 20 over Bluestone Lake). The park includes 1,744 hectares of land, almost all of which is forested (NPS 2017).

Located in southern West Virginia, BLUE is a breathtaking outdoor recreation destination with diverse geology, wildlife, and cultural history. The river has carved a scenic gorge through the

landscape over millions of years. BLUE includes rugged cliffs and rock formations, as well as the river itself, named for the blue limestone found in its upper reaches (NPS 2023e). Peaks in the park exceed 800 meters in elevation and drop to below 440 meters where the river transitions into Bluestone Lake (USGS 2023d).

BLUE is predominantly composed of sedimentary rock layers, primarily sandstone and shale, which were deposited over 300 million years ago during the Pennsylvanian Period. The park is contained in the Central Appalachians Ecoregion in regions 69C (Greenbrier Karst) and 69D (Cumberland Mountains). The Greenbriar Karst region contains rolling isolated hills and karst landscapes underlain by limestones the Greenbrier and Mississippian formations. Mixed mesophytic forest occurred pre-settlement, though much of that has been converted into pasture and hay. Greenbrier Karst region is among the best livestock producing areas in West Virginia. The Cumberland Mountains are strongly dissected with steep slopes and narrow ridges. Underlaying geology is primarily Pennsylvanian aged sandstone, siltstone, shale and coal from the Pottsville Group. The area has well drained soils of low to moderate fertility. Pre-settlement vegetation was primarily Mixed Mesophytic forest. Current land use is largely timber production or second growth forest. Coal mining is prevalent in the region and has led to stream degradation (Woods et. al., 1999).

The biodiversity within Bluestone National Scenic River is rich and varied, with an array of wildlife species calling the area home. Much of the wildlife diversity is likely the result of the National Scenic River and surrounding forest's "undeveloped primitive character" (NPS 2017). The park offers a variety of outdoor recreation opportunities including hiking, fishing, bird and wildlife viewing, camping, and more. BLUE also has a rich cultural heritage dating back at least 12,000 years (NPS 2017).

Methods

Sample Design

The study design utilized qualitative sampling (referred to as timed searches) at regular intervals throughout NERI, BLUE, and GARI plus additional sites at River Access points within the three parks.

When a mussel density of one mussel per square meter or greater was encountered during timed searches, a semi-quantitative survey along a buffered transect was triggered. If triggered, transects were set as perpendicular to stream flow as possible but were deflected upstream or downstream when necessary to keep divers out of flow that was too swift or dangerous to survey. Transect orientation was recorded using Apple's onboard iPad digital compass app. Transects were 60 meters in length or bank to bank when the stream was less than 60 meters across at the survey location.

Site Selection

Site location criteria were dictated by the NPS. Criteria used were described in the request for proposal:

New River Gorge National Park and Preserve: 30 survey locations

1. One survey location at each of 10 river access sites (from upstream to downstream: Meadow Creek Campground, Glade Creek, Mill Creek, Grandview Sandbar, McCreery, Army Camp, Thayer, Stonecliff, Brooklyn, and Cunard).
2. Twenty additional survey locations from Meadow Creek Campground river access to Cunard river access distributed approximately evenly, with adjustments to account for unsuitable habitat. These locations are excluded from the survey area: (a) whitewater rapids that are impractical or unsafe to sample; (b) Dun Glen and Thurmond (mussel surveys complete); (c) near the Thomas Buford Pugh Bridge in Prince, WV (mussel surveys complete); (d) near the Stonecliff Bridge on McKendree Road

Bluestone National Scenic River: 9 survey locations

1. One survey location on Little Bluestone River in the lower 0.5 km before its confluence with Bluestone River.
2. Eight survey locations on the Bluestone River from the upstream park boundary downstream to Little Bluestone River, distributed approximately evenly, with adjustments to account for unsuitable habitat.

Gauley River National Recreation Area: 24 survey locations

1. Five survey locations on the Meadow River from the park boundary upstream of the U.S. Highway19 bridge downstream to its confluence with the Gauley River, distributed approximately evenly, with adjustments to account for unsuitable habitat.
2. One survey location on Dogwood Creek of Meadow River, immediately upstream of its mouth.

3. Three survey locations at river access points (upstream to downstream: Mason Branch, Woods Ferry, Upper Swiss).
4. Fifteen additional survey locations on the Gauley River from the Meadow River confluence downstream to Upper Swiss, distributed approximately evenly, with adjustments to account for unsuitable habitat.

In BLUE and GARI, a few sites were shifted slightly to survey particularly promising habitat after no mussel (GARI) or very few mussels (BLUE) were found at other sites.

Survey Methods

Desktop Analysis

Prior to fieldwork, Copperhead reviewed available literature, aerial photography, digital elevation models, topography, surrounding road networks, geology, and existing mussel records, provided by WV Division of Natural Resources (WVDNR), within the specified basins to inform River Access locations, identify potential hazards, and enhance understanding of mussel fauna and habitat.

Field Reconnaissance

Prior to survey work, field reconnaissance was conducted by Copperhead and by the National Park Service staff to better understand access, water conditions, and site safety.

Survey Extents

Survey of the NERI encompassed approximately 51 km of the New River running from Meadow Creek to Cunard River Access (Table 1, Figure 1). Surveys were conducted at each of 10 River Access sites with an additional 20 survey locations distributed from Meadow Creek Campground River Access to Cunard River Access.

Survey of the GARI encompassed approximately 51 km of stream, starting at the Meadow River 1.9 kilometers upstream of the US 19 Bridge, following into the Gauley River and continuing downstream to Upper Swiss. (Table 1, Figure 2). Surveys were conducted at each of 3 River Access sites with an additional 21 survey locations distributed from the Meadow River downstream of Nallen to the Gauley River at Swiss.

Survey of the BLUE encompassed the approximately 17.8 km of the Bluestone River within the National Scenic River including 8 sites roughly evenly distributed on the Bluestone River and one site on the Little Bluestone River approximately 0.5 km upstream of its confluence with the Bluestone River (Table 1, Figure 3).

Table 1. Mussel survey sites in NERI including site name, Site ID, and Latitude/Longitude in decimal degrees, WGS1984 datum.

Park	Site Name	Latitude	Longitude
NERI	Army Camp River Access	37.85977667	−81.09965112
NERI	Brooklyn River Access	37.98397566	−81.02768185
NERI	Cunard River Access	37.99888563	−81.02173583
NERI	Glade Creek Access Site	37.82968	−81.014821
NERI	Grand View Sand Bar Access	37.85757329	−81.05388933
NERI	McCreery Access Point	37.84910424	−81.0916533
NERI	Meadow Creek River Access	37.79622785	−80.92120261
NERI	Mill Creek River Access	37.8333344	−81.04900174
NERI	Stonecliff River Access	37.93389634	−81.06260822
NERI	Thayer River Access	37.90264135	−81.03232633
NERI	New River 1	37.81879064	−80.94224865
NERI	New River 2	37.83165634	−80.96501492
NERI	New River 3	37.83091117	−80.99362464
NERI	New River 4	37.83137546	−81.03156612
NERI	New River 5	37.84624363	−81.05341002
NERI	New River 6	37.85182903	−81.07992458
NERI	New River 7	37.8543565	−81.09952794
NERI	New River 8	37.86071336	−81.08492028
NERI	New River 9	37.86491717	−81.07063887
NERI	New River 10	37.87766772	−81.07014113
NERI	New River 11	37.8890188	−81.0651495
NERI	New River 12	37.89993674	−81.04971361
NERI	New River 13	37.91325212	−81.03596536
NERI	New River 14	37.91861419	−81.05389379
NERI	New River 15	37.94609416	−81.06685954
NERI	New River 16	37.96611766	−81.07944002
NERI	New River 17	37.96228129	−81.06139463
NERI	New River 18	37.96013864	−81.0358832
NERI	New River 19	37.96838352	−81.02266492
NERI	New River 20	37.99022988	−81.02589481
GARI	Dogwood Creek	38.1696834	−80.95138788
GARI	Mason Branch Boat Ramp	38.22269008	−80.98954511
GARI	Upper Swiss	38.22309629	−81.12038497
GARI	Woods Ferry	38.20360724	−81.01442358
GARI	Meadow River 1	38.14249014	−80.91325419
GARI	Meadow River 2	38.15055961	−80.92700709

Table 1 (continued). Mussel survey sites in NERI including site name, Site ID, and Latitude/Longitude in decimal degrees, WGS1984 datum.

Park	Site Name	Latitude	Longitude
GARI	Meadow River 3	38.15691607	−80.94169663
GARI	Meadow River 4	38.1807438	−80.94355918
GARI	Meadow River 5	38.1905545	−80.94646262
GARI	Gauley River 1	38.19407415	−80.94429318
GARI	Gauley River 2	38.20229983	−80.95615588
GARI	Gauley River 3	38.20927089	−80.96647024
GARI	Gauley River 4	38.21804463	−80.97486899
GARI	Gauley River 5	38.21860713	−81.01020718
GARI	Gauley River 6	38.21369389	−81.01988282
GARI	Gauley River 7	38.21893068	−81.0336243
GARI	Gauley River 8	38.23929416	−81.0328554
GARI	Gauley River 9	38.22997684	−81.03749005
GARI	Gauley River 10	38.22343955	−81.04774207
GARI	Gauley River 11	38.21074188	−81.05888164
GARI	Gauley River 12	38.20239322	−81.0664976
GARI	Gauley River 13	38.19923094	−81.08324769
GARI	Gauley River 14	38.20519562	−81.09195403
GARI	Gauley River 15	38.21258644	−81.10887887
BLUE	Bluestone River 1	37.52302814	−81.0262327
BLUE	Bluestone River 2	37.5313994	−81.01627335
BLUE	Bluestone River 3	37.54465056	−81.009205
BLUE	Bluestone River 4	37.55070144	−80.99511769
BLUE	Bluestone River 5	37.56457753	−80.99804547
BLUE	Bluestone River 6	37.57217019	−80.97738758
BLUE	Bluestone River 7	37.58759203	−80.96141374
BLUE	Bluestone River 8	37.60161562	−80.94606697
BLUE	Little Blue Stone 1	37.58638148	−80.97189811

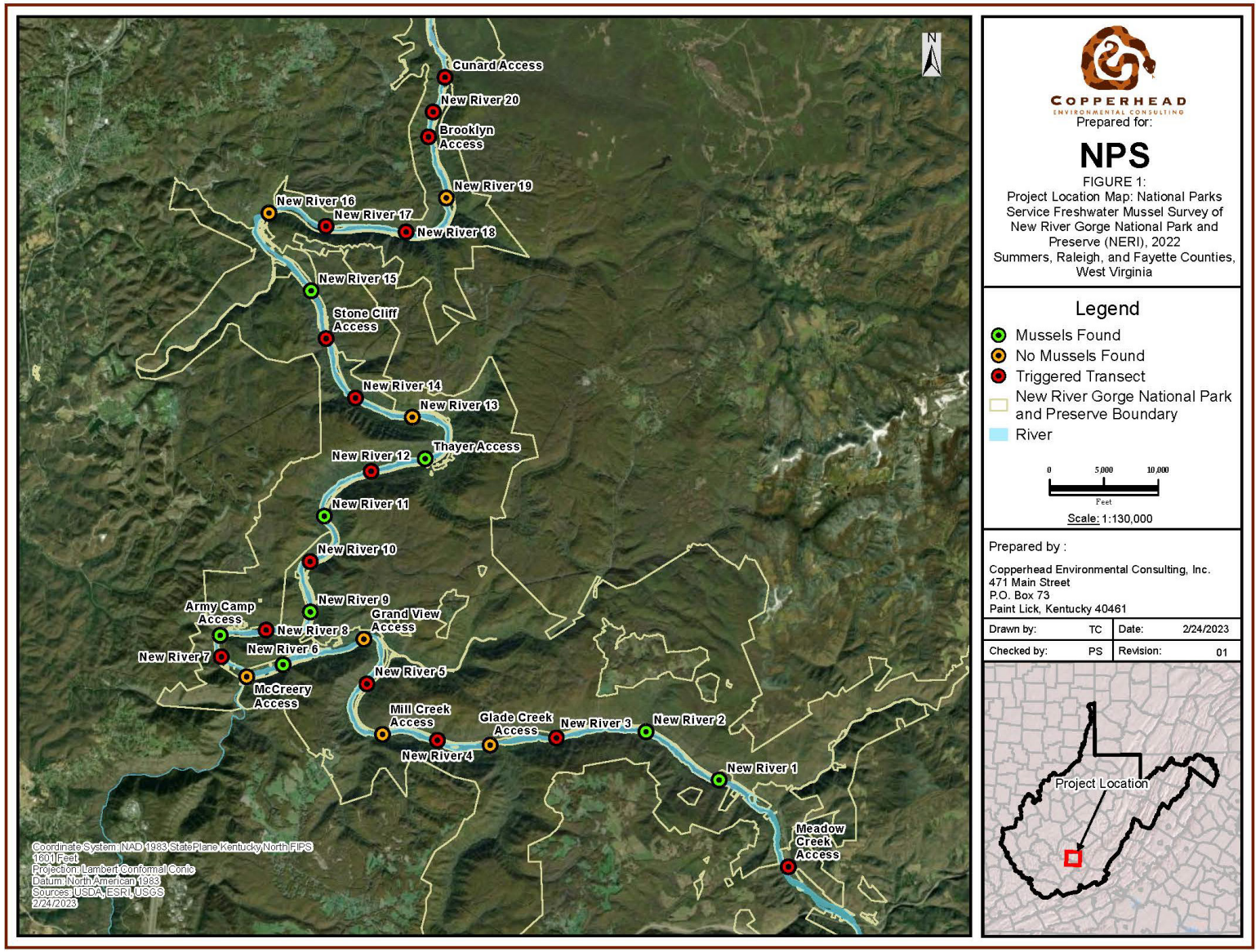


Figure 1. Project Location Map: Freshwater Mussel Survey of New River Gorge National Park and Preserve (NERI), 2022.

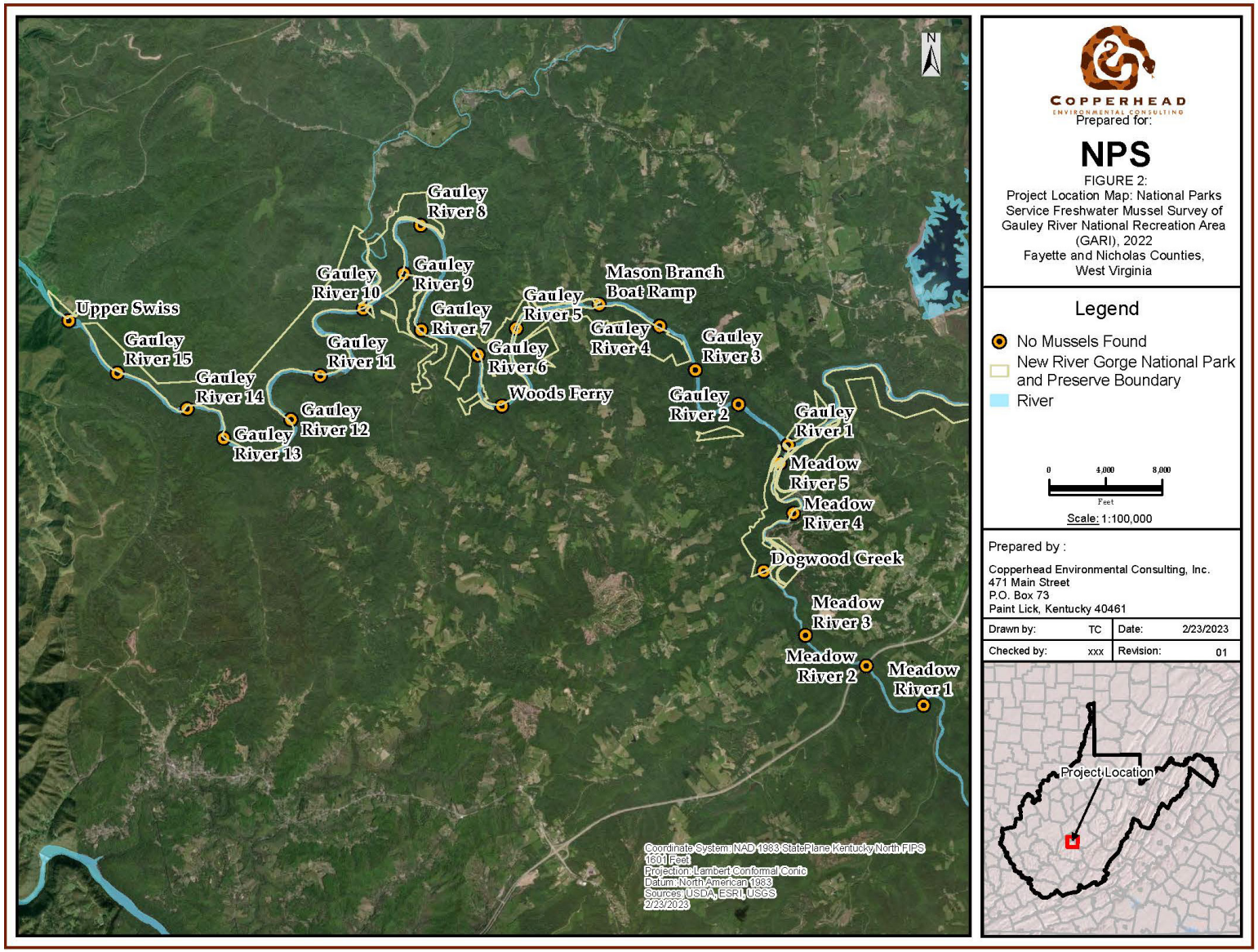


Figure 2. Project Location Map: Freshwater Mussel Survey of Gauley River National Recreation Area (GARI), 2022.

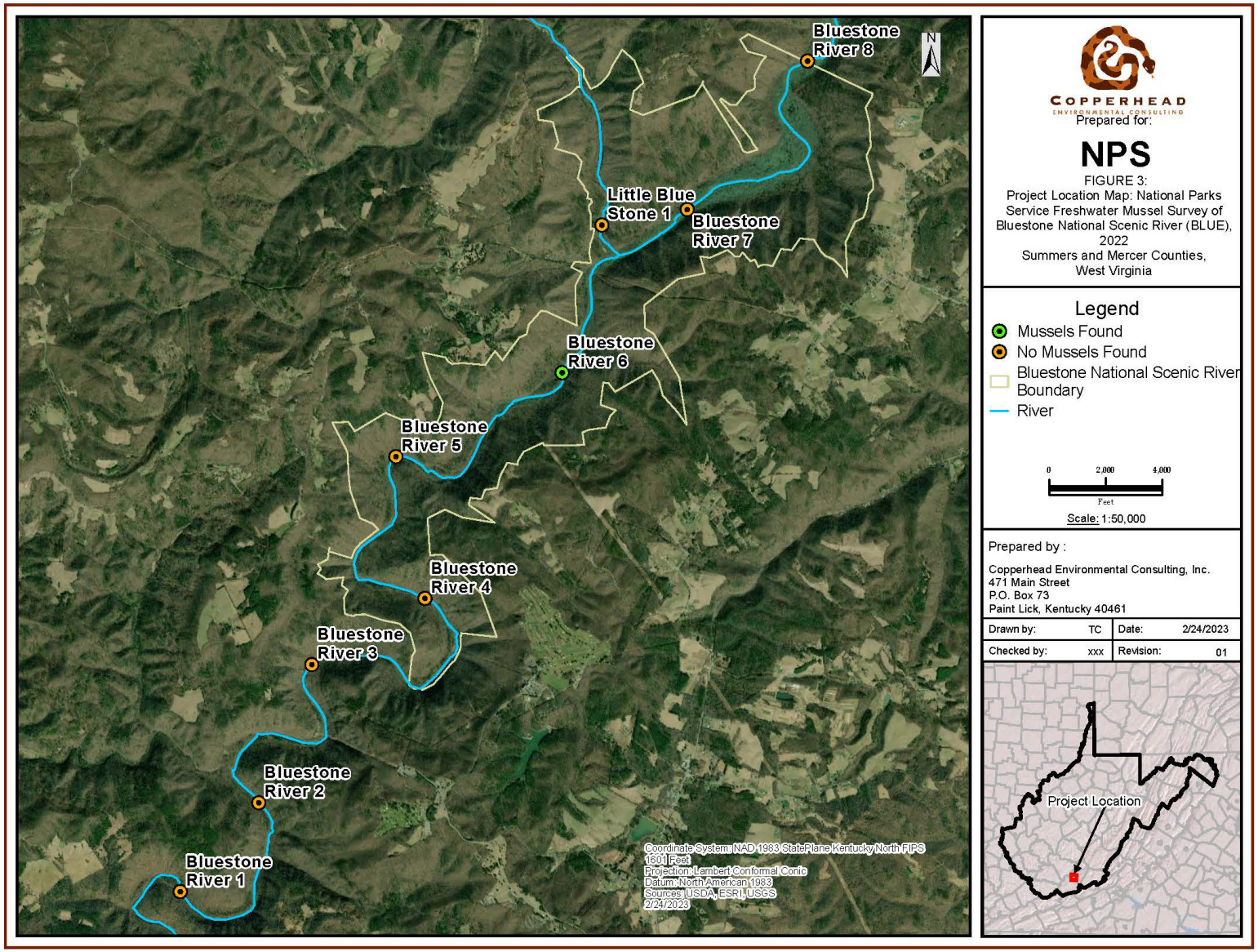


Figure 3. Project Location Map: Freshwater Mussel Survey of Bluestone National Scenic River (BLUE), 2022.

Field Methods

Survey crews consisted of two to four people, one of whom was a federally and state permitted malacologist listed on West Virginia's list of Approved Freshwater Mussel Surveyors for Group 1–4 streams.

Survey Personnel: Price Sewell (Malacologist/Diver), Taylor Fagin (Malacologist/Diver), Will Seiter (Diver), Gregg Janos (Diver), Brian Dennis (Diver), Shea Davis (Data Keeper), Cooper Leist (Whitewater Guide/Data Keeper).

Site access was accomplished by truck or van via River Access locations, on foot for hike in sites, and by raft (NERI only).

Survey reaches were centered on the survey sites previously identified through coordination with NPS. Surveys excluded hazardous areas and areas that were dominated by habitats that tend to exclude native mussel presence (e.g., areas with bedrock or clay as the dominant component at the substrate surface). When a survey site was deemed to have unsafe conditions or lacked appropriate habitat, a safe site was selected nearby. Survey reaches included 20 meters upstream and 20 meters downstream of the point. Sites were typically worked from the bank outward because flow typically made staging from the middle of the stream impossible or unsafe.

Once at the survey location, a bank was selected for staging. For access sites, the access location (typically ramp) was used for staging. For hike-in sites, the bank used to get down to the river was used for staging. For boat-in sites, stream conditions typically determined the bank selected (e.g., if fast flow toward one side would make most of the river inaccessible to divers, the other side was selected). When safety and access didn't dictate the side selected for boat-in sites, the side that looked most appropriate for survey was selected.

Qualitative timed searches of a minimum of one person-hour per site and semi-quantitative transect surveys were typically conducted consecutively in time, excluding cases in which transects were triggered late in the day or inclement weather halted work at a site. In those cases the site was revisited at a later date. Transects were searched at a minimum of 0.5 minutes per square meter of heterogeneous substrates. Bedrock areas and tops of boulders (essentially bedrock to a mussel), were quickly visually scanned for mussels with no minimum time restriction. Seams in boulders with accumulated heterogeneous substrates were searched carefully, as were the edges of boulders.

Transect trigger criteria was a live mussel density greater than or equal to one mussel per square meter. Density was determined by searching in the vicinity of each live mussel found within a one-meter radius. If four or more mussels were found within a one meter radius, trigger criteria was met and a transect was set following the completion of the timed search.

For both qualitative timed searches and semi-quantitative transects, field personnel recorded covariate data for assessing habitat suitability. This included rapid instream habitat assessment using the Environmental Protection Agency (EPA) Rapid Bioassessment Habitat Form for Low Gradient Streams (EPA 1999), depth (average for the survey area for qualitative surveys, average for the transect section for semi-quantitative surveys), current velocity (JDC Flowwatch portable flowmeter,

Yverdon-les-Bains, Switzerland), and substrate data. Direct reading water parameters (pH, conductivity, dissolved oxygen, and temperature) were recorded at each site with a YSI Pro Plus Multiparameter Instrument (YSI Inc./Xylem Inc., Yellow Springs, OH). Turbidity was recorded using a 2100Q Field Turbidity Meter (Hach Inc., Fort Collins, CO).

All live mussels found during qualitative timed searches and semi-quantitative transect surveys were placed in mesh bags and brought to the surface for processing. Mussels were kept in flowing stream water except when moving and processing. Surveyors recorded species, sex (if known), condition (live/relic), and measured length along the long axis with calipers. Photographs were taken of each species at each survey location. Species and condition of relic shells found at each site were recorded if that species was not found alive at the site. Mussel handling followed the 2022 WVMSP (WVDNR 2022). Live mussels were returned to their approximate locations in the streams following processing. Mussel names (both scientific and common) follow Williams et. al. (2017).

Site altitudes were recorded using iPad tablet GPS units with an allowed vertical accuracy of less than 20m. Where tablet altitude data was missing or unreliable, it was supplemented with the USGS's 3D Elevation Program's 1/9 arc-second Standard DEMs. Altitudes were interpolated from the DEM for each inspection point. Slopes were then calculated at each inspection point using the Geodesic method available in the ArcGIS Pro "Slope" tool. The mean of the inspection slopes was found and used as the site-level slope. The absolute vertical accuracy of the DEM-filled points within the continental United States is approximately 0.82 meters root mean square error (RMSE), based on a comparison to almost 25,000 NOAA National Geodetic Survey OPUS points [(Stoker and Miller 2022) as cited by (United States Geological Survey (USGS) n.d.)].

Qualitative Survey (Timed Searches)

Qualitative surveys were conducted via timed-search methodology. Surveys used a combination of snorkeling and SCUBA. For water deeper than arm's length in clear water, SCUBA was used. Based on river depths SCUBA was primarily used in NERI, snorkeling was primarily used in BLUE, and GARI was a combination of SCUBA and snorkeling, though both methods were used in all parks. Each surveyor began survey at the downstream end of their survey section (except for survey sections within eddies where current did not flow downstream). Surveyors searched visually, aided by moving or fanning the upper 5 cm of substrate, when possible, to search for mussels buried below the surface. Large rocks and submerged logs were moved when possible, to search for mussels underneath. Minimum search time at each site was one person hour (split equally by two surveyors). Surveyors meandered through their sections, searching all substrate types, but focusing on areas of heterogeneous substrates or areas of higher mussel density. Surveyors surfaced occasionally for orientation. Surveyors' search areas did not overlap. Mussels detected by each surveyor were recorded separately.

During qualitative searches at each survey location, when mussel density greater than or equal to one mussel per square meter was encountered, a semi-quantitative transect survey was triggered. Density was determined by using a one-meter radius around each live mussel encountered. If four or more live mussels were found within the one-meter radius circle (including the original mussel), the trigger was met and a transect was set following the completion of the qualitative survey. All data for

qualitative surveys was recorded on a tablet using ESRI's Field Maps and Survey 123 applications. Transect data was kept on both tablet and field datasheets.

Semi-quantitative Survey (Transect Surveys)

Transects were set as close to perpendicular to stream flow as safely possible. If stream flow was too fast for divers to stay in place, transects were angled away from directly perpendicular to flow to avoid fast flowing water. Transects were placed bank to bank unless the stream was wider than 60 meters across, in which case they were 60 meters in length with one end on the bank. Transects crossed the highest area of mussel density encountered during the qualitative survey except for River Access locations where surveys centered on the access point (usually a ramp) and extended riverward. This was done to provide the most relevant information for future maintenance of access locations.

Transects were sub-divided into five-meter sections and were searched within a half meter on either side of the transect. For each five-meter transect section with heterogeneous substrates, a minimum search rate of 0.2 minutes per meter was used when no live mussels were found and 0.5 minutes per meter when live mussels were encountered. Bedrock or similarly unsuitable habitat (i.e., clay) were quickly visually scanned unless live mussels were present.

For all transect sub-sections, depth and substrate were recorded. Substrate was visually estimated using a modified Wentworth scale of grain size: bedrock, clay/mud, silt, sand, gravel, cobble, and boulder. The top three substrate types were recorded in order of dominance.

NERI Results

NERI Desktop Analysis

Historic mussel data was obtained through USFWS (USFWS 2022) and WVDNR. Remote sensing data reviewed included US Geological Survey (USGS) 7.5-minute topographic mapping, geologic mapping (USGS), digital elevation models (USGS), and orthophotography (from ESRI©). Additional remote sensing data was obtained through the US Department of Agriculture's Natural Resource Conservation Service Geospatial Data Gateway website: https://datagateway.nrcs.usda.gov/.

An informal USFWS Information for Planning and Consultation (IPaC) search was conducted for the New River within NERI (USFWS 2022). Although the IPaC identified seven federally listed mussels as having the potential to occur within the river, no historic records of federally listed species within the basin are reported by WVDNR. The IPaC results may be due to the project area's close proximity to listed species known to occur in the Kanawha River at Kanawha Falls approximately 16.3 river kilometers downstream.

The West Virginia Mussel Survey Protocol (WVDNR 2022) lists the New River as a Group 1 stream because it is considered wadeable and is not known to have extant populations of federally threatened or endangered species.

Historic mussel data within NERI from the New River proper in NERI provided by WV Division of Natural Resources (Kevin Eliason, Mussel Biologist, WVDNR, Personal Communication 2/17/2022) included data from 24 surveys/collection events. Nine species were recorded in the New River from 1955 to 2019 with seven species reported since 2000 (Table 2).

Table 2. Mussel species historically documented in the New River in West Virginia including presence since 2000.

Species	Common Name	S-Rank	Presence Since 2000 (Y/N) *
Actinonaias ligamentina	Mucket	S3	Y
Alasmidonta marginata	Elktoe	S2	Y
Cyclonaias tuberculata	Purple Wartyback	S2	Y
Eurynia dilatata	Spike	S3	Y
Lampsilis cardium	Plain Pocketbook	S3	Y
Lampsilis fasciola	Wavyrayed Lampmussel	S3	N
Lasmigona subviridis	Green Floater	S2	Y
Pyganodon grandis	Giant Floater	S3	N
Tritogonia verrucosa	Pistolgrip	S3	Y

* Nomenclature and state listing from WVDNR 2022. https://wvdnr.gov/plants-animals/freshwater-mussels/

Two species (*Lampsilis fasciola* and *Pyganodon grandis*) were only found prior to 2000 and were historically documented in very low numbers. These were not considered to be extant in the New River within the survey reach for this inventory.

Since 2000, WVDNR data of live mussels found in the New River within the NERI park and preserve shows an overwhelming majority of mussels to be *Actinonaias ligamentina* (93.7%), with *Cyclonaias tuberculata* being the second most abundant species (4.8%) (Table 3).

Table 3. Live mussel abundance and percentage found in the New River within NERI between 2000 and 2019.

Species	Common Name	Count*	Percentage
Actinonaias ligamentina	Mucket	10620	93.73%
Alasmidonta marginata	Elktoe	4	0.04%
Cyclonaias tuberculata	Purple Wartyback	542	4.78%
Eurynia dilatata	Spike	78	0.69%
Lampsilis cardium	Plain Pocketbook	2	0.02%
Lasmigona subviridis	Green Floater	1	0.01%
Tritogonia verrucosa	Pistolgrip	4	0.04%
Unidentified	–	79	0.70%

* Survey Data provided by WVDNR

NERI Field Survey

The New River within the NERI park and preserve was surveyed between 28-June-2022 and 22-September-2022. A total of 30 sites were sampled on the New River between Meadow Creek River Access and Cunard River Access. This included 20 sites distributed along the river and 10 sites at river access points. All 30 sites were sampled via qualitative timed search. Live mussel density of greater than one mussel per square meter was observed at 15 sites triggering semi-quantitative transect surveys.

NERI Survey Conditions

Surveys were only conducted under favorable conditions. Several field visits were cut short or disbanded due to heavy rainfall or forecast heavy rainfall that increased turbidity and/or flow to the extent that survey quality would be degraded or flows would have proved unsafe for the field crew. Although this did affect mobilization effort and schedule, it did not affect survey effort. All surveys that were started were completed, though some survey trips or days were abandoned and rescheduled.

Stream velocity measured at survey sites ranged between 0 and 2.65 meters per second. The survey crew came to the decision that flow approaching and above 2 meters per second at the surface made for difficult and potentially dangerous survey and yielded few mussels. Those mussels found in faster flows were typically in calmer pockets with sand and gravel sheltered by boulders. All but two

survey sites were conducted in areas with stream velocity at the surface of 1.1 meters per second or less.

NERI Relic Shells

With the exception of the robust shells of *A. ligamentina*, relic shells were sparse in the New River. Relic shells found during field activities included four species: *A. ligamentina*, *C. tuberculata*, *E. dilatata*, and *T. verrucosa*. Although relic shells encountered did not provide evidence of species that were not encountered alive within the entire survey extent, they did increase the species list by two species (*E. dilatata* and *T. verrucosa*) at Meadow Creek River Access. There were also multiple sites where no live mussels were encountered but relic shells or relic shell fragments were found. These were all *A. ligamentina* or *C. tuberculata.*

NERI Incidental Mussels

Mussels encountered outside of timed searches and transects were recorded separately and were only recorded if species were encountered that were not found during timed or transect surveys. The only *A. marginata* found during the 2022 NERI project was encountered while returning mussels to the streambed at Meadow Creek River Access.

An area of high mussel density was encountered upstream of Thayer River Access (GPS location recorded: 37.90057, −81.04164). This location was not a survey site, so survey was conducted, however in under a minute of search, both live *A. ligamentina* and *C. tuberculata* were observed at a high density.

NERI Qualitative Survey (Timed Searches)

NERI Qualitative Survey Effort

Qualitative timed searches were conducted at 30 sites in NERI. Total search time for all timed searches was 1,858 minutes (approximately 31 hours) for a detection rate of 1.65 mussels per minute of qualitative search.

NERI Qualitative Mussel Habitat (Substrates)

Substrate data gathered during qualitative timed searches were a visual estimate of the dominant substrates of the timed searched. Excluding areas with bedrock at or near the surface and a few areas with excessive silt, divers reported that substrates in the New River were generally good for mussel colonization, with loose sediment that allow mussel burrowing and larger particles (primarily cobbles) to keep substrates in place during high flow events. The most common dominant substrate composition encountered during areas searches was Cobble, Gravel, Sand. The greatest number of mussels found was in the composition Cobble, Sand, Boulder despite this substrate composition being encountered less frequently.

NERI Qualitative Mussels Encountered

Timed searches were completed at 30 sites, 20 of which produced live mussels (Table 4) and 15 sites had dense enough areas to trigger a transect survey. Five species were encountered alive during qualitative timed searches with maximum diversity (including live mussels only) of three species at a site (Table 5). One site, Meadow Creek River Access, had three species live and five total species

when relic shells were included. An additional species (*Alasmidonta marginata*) was found alive at Meadow Creek Access while returning mussels to the stream after processing. This was the only individual *A. marginata* found during the project.

Table 4. Mussel presence documented during qualitative timed searches, NERI 2022.

Site Name	*A. ligamentina*	*C. tuberculata*	*E. dilatata*	*T. verrucosa*	*L. cardium*
Meadow Creek River Access *	Y	Y	N	N	N
New River 1 *	Y	N	N	N	N
New River 2 *	Y	Y	N	N	N
New River 3 *	Y	Y	Y	N	N
Glade Creek Access Site	N	N	N	N	N
New River 4 *	Y	Y	N	N	N
Mill Creek River Access	N	N	N	N	N
New River 5 *	Y	Y	N	N	N
Grand View Sand Bar Access	N	N	N	N	N
New River 6 *	Y	N	N	N	N
McCreery Access Point	N	N	N	N	N
New River 7 *	Y	Y	N	N	N
Army Camp River Access *	Y	N	N	N	N
New River 8 *	Y	Y	N	N	N
New River 9	N	N	N	N	N
New River 10 *	Y	Y	N	N	N
New River 11 *	Y	N	N	N	N
New River 12 *	Y	Y	N	N	N
Thayer River Access *	Y	N	N	N	N
New River 13	N	N	N	N	N
New River 14 *	Y	Y	N	Y	N
Stone Cliff River Access *	Y	N	N	N	N
New River 15 *	Y	N	N	N	N
New River 16	N	N	N	N	N
New River 17 *	Y	Y	Y	N	N
New River 18 *	Y	Y	N	N	N
New River 19	N	N	N	N	N
Brooklyn River Access *	Y	Y	N	N	N
New River 20 *	Y	Y	N	N	Y
Cunard River Access *	Y	Y	N	N	N

* Sites with mussel presence, cells shaded gray.

Table 5. Total live mussels found during qualitative timed searches, NERI 2022.

Species	Common Name	Count	Relative Abundance (%)
Actinonaias ligamentina (Mucket)	Mucket	1014	90.05%
Cyclonaias tuberculata Wartyback)	Purple Wartyback	105	9.33%
Eurynia dilatata	Spike	4	0.36%
Lampsilis cardium	Pocketbook	1	0.09%
Tritogonia verrucosa (Pistolgrip)	Pistol Grip	2	0.18%

Live mussels were found at six of 10 access sites (60%) and 17 of 20 non-access sites (85%).

Length along the long axis was measured for all live mussels found. *A. ligamentina* encountered on transects varied from 45 to 139 millimeters with seven mussels measuring 65 millimeters or less (criteria used to determine juvenile *A. ligamentina*). *C. tuberculata* encountered on transects varied from 33 to 115 millimeters in length with five individuals measuring 55 millimeters or less (criteria used to determine juvenile *C. tuberculata*). Mussel lengths are included in Appendix A. All individuals of *E. dilatata, L. cardium,* and *T. verrucosa* encountered had lengths consistent with adults of those species.

NERI Semi-quantitative Survey (Transects)

Transects were triggered at 15 of 30 sites (50%) on the New River. Level of effort (active search time) for transect survey on NERI was 1,170 minutes and ranged from 37 minutes to 127 minutes of search per transect depending on habitat and mussel density. A total of 1,071 live mussels of five species were found during transect searches. As with qualitative searches, transect capture results were overwhelmingly dominated by *A. ligamentina* (n=908, 86.6%). Relative abundance of sampled transects varied from 57.1% to 100% *A. ligamentina.* Other species encountered on transects were *C. tuberculata* (n=133, 12.9%), *E. dilatata* (n=3, 0.3%), *T. verrucosa* (n=3, 0.3%), and *L. cardium* (n=2, 0.2%) (Table 6).

Mussel density averaged along the length of each transect varied from 0.12 to 4.58 live mussels per square meter. Maximum density within any transect segment was recorded at Meadow Creek River Access where 96 mussels were found in one five-meter section (19.2 mussels per square meter).

Mussel diversity ranged from one to four species of live mussel per transect. The two transects with four species of live mussel (Brooklyn River Access and NR03) had the second and third largest total number of live mussels. Meadow Creek Access, which had the highest total number of mussels, had three species of live mussel with two additional species found as weathered relic shells.

Each live mussel found was measured along its long axis to obtain mussel length. *A. ligamentina* encountered on transects varied from 33 to 135 millimeters with 35 mussels measuring 65 millimeters or less. *C. tuberculata* encountered on transects varied from 33 to 115 millimeters in

length with three mussels measuring 55 millimeters or less. Mussel lengths are included in Appendix A.

Table 6. Live mussels found during semi-quantitative transect searches, NERI 2022.

Site	*A. ligamentina*	*C. tuberculata*	*E. dilatata*	*L. cardium*	*T. verrucosa*	Total Count
Brooklyn RA*	123	4	0	1	1	129
Cunard RA*	9	0	0	0	0	9
Meadow Creek RA*	207	67	0	1	0	275
Stonecliff RA*	20	0	0	0	0	20
NR03	197	47	1	0	1	246
NR04	44	2	1	0	0	47
NR05	45	4	0	0	0	49
NR07	117	0	0	0	0	117
NR08	21	1	0	0	0	22
NR10	8	0	0	0	0	8
NR12	11	0	0	0	0	11
NR14	4	2	0	0	1	7
NR17	45	0	1	0	0	46
NR18	8	2	0	0	0	10
NR20	70	5	0	0	0	75
Totals	929	134	3	2	3	1071

* RA = River Access

NERI Transect Habitat

The most common substrate composition documented along transects was Cobble, Gravel, Sand which accounted for 14% of the habitat along transects. Composition Boulder, Cobble, Sand and composition Boulder, Cobble, Silt each made up 12% of total substrates encountered. No other substrate composition accounted for more than 6% of the total encountered. The only substrates encountered that were considered unsuitable were bedrock and bedrock shallowly overlain by other substrates. These combined to make up 6% of the substrates encountered along transects. Appendix B shows mussel totals and substrates from each transect subsection.

GARI Results

GARI Desktop Analysis

Historic mussel data reviewed was obtained through USFWS and WVDNR. Remote sensing data reviewed included US Geological Survey (USGS) 7.5-minute topographic mapping, geologic mapping (USGS), digital elevation models (USGS), and orthophotography (from ESRI©). Additional remote sensing data was obtained through the US Department of Agriculture's Natural Resource Conservation Service Geospatial Data Gateway website: https://datagateway.nrcs.usda.gov/.

An informal USFWS Information for Planning and Consultation (IPaC) search was conducted for the GARI (USFWS 2022). Although the IPaC identified seven federally listed mussels as having the potential to occur within GARI, no historic records of federally listed species within the basin are reported by WVDNR.

The West Virginia Mussel Survey Protocol (WVDNR 2022) lists the Gauley and Meadow rivers as Group 1 streams because they are considered wadeable and are not known to have extant populations of federally threatened or endangered species.

Historic mussel data within GARI provided by WV Division of Natural Resources (WVDNR) included three survey events from 2006 and 2012. Two surveys were conducted on the Gauley River proper and one survey was conducted on Peters Creek (a Gauley River tributary). No mussels were found during any recorded event within GARI that was provided by WVDNR for this project.

GARI Field Survey

The Gauley and Meadow rivers and Dogwood Creek were surveyed between 2-July-2022 and 29-September-2022. A total of 24 sites were sampled on the Gauley River, Meadow River, and Dogwood Creek. This includes 20 sites roughly evenly distributed along the Meadow and Gauley rivers within GARI, three sites at Gauley River Access points, and one site on Dogwood Creek immediately upstream of its confluence with the Meadow River. Areas of unsuitable habitat and areas that were unsafe to survey were shifted to appropriate safe habitat nearby. Proposed survey locations were coordinated with the NPS prior to fieldwork. All sites were sampled via qualitative timed search. Density trigger was not hit at any sites within GARI, so semi-quantitative transect surveys were not conducted.

GARI Survey conditions

Surveys were only conducted under favorable conditions. High flow periods were avoided. Visibility was greater than 0.7 meters for all surveys in GARI. Several field visits were cut short or disbanded due to heavy rainfall or forecast heavy rainfall that increased turbidity and/or flow to the extent that survey quality would be degraded or flows would have proved unsafe for the field crew. Although this did affect mobilization effort and schedule, it did not affect survey effort. All surveys that were started were completed, though some survey trips were abandoned and rescheduled.

Stream velocity measured at survey sites ranged between 0 and 2.5 meters per second. The survey crew came to the decision that flow approaching and above 2 meters per second at the surface made for difficult and potentially dangerous survey and yielded few mussels. Those mussels found in faster flows were typically in calmer pockets with sand and gravel sheltered by boulders. All but seven timed search sites were surveyed in areas with stream velocity at the surface of 1.1 meters per second or less.

GARI Qualitative Survey (Timed Searches)

GARI Substrates

Twenty-eight substrate types were recorded during mussel surveys in GARI. The most common habitat type surveyed in GARI was Boulder, Cobble, and Sand (12.5% of substrates surveyed). The second most common substrate type was Boulder and Cobble (8.3%). Other substrates compositions made up 6.3% or less of the total substrates assessed (Table 7). No mussels or evidence of mussels was found in GARI, so substrate comparison was not analyzed.

Table 7. Dominant substrates reported by each survey diver at each site for qualitative timed search for a mussel survey of the Gauley River within GARI.

Site	Diver 1 Substrates (in order of dominance) *	Diver 2 Substrates (in order of dominance) *
Meadow River 1	B, C, SIL	B, C, SIL
Meadow River 2	B, C, SA	B, C, SA
Meadow River 3	B, BR, C	B, SA, C
Dogwood Creek	B, C	B, C
Meadow River 4	B, BR, SIL	C, B, SIL
Meadow River 5	BR, C, SIL	BR, C, SIL
Gauley River 1	C, SA,	B, BR, C
Gauley River 2	SA, B, BR	SA, B, C
Gauley River 3	B, C, SA	B, C, SA
Gauley River 4	B, C	B, C
Mason Branch	B, SIL, C	G, SA, C
Gauley River 5	B, C, SA	B, C, SA
Woods Ferry	C, G, SA	C, SA, SIL
Gauley River 6	B, SA, C	BR, B, SA
Gauley River 7	B, SIL, C	BR, SA, B
Gauley River 8	B, C, SA	C, SA, B
Gauley River 9	C, B, SA	C, SA, BR
Gauley River 10	C, B, G	C, B, SIL
Gauley River 11	BR, C, SA	BR, C, SA
Gauley River 12	B, SA, C	B, SA, SIL
Gauley River 13	C, SA, G	SA, C, SIL

* SIL = Silt; SA=Sand; G=Gravel; C=Cobble; B=Boulder; BR=Bedrock

Table 7 (continued). Dominant substrates reported by each survey diver at each site for qualitative timed search for a mussel survey of the Gauley River within GARI.

Site	Diver 1 Substrates (in order of dominance) *	Diver 2 Substrates (in order of dominance) *
Gauley River 14	BR, C, G	C, G, B
Gauley River 15	C, G, SA	C, SA, G
Upper Swiss	C, G, SA	C, SA, SIL

* SIL = Silt; SA=Sand; G=Gravel; C=Cobble; B=Boulder; BR=Bedrock

BLUE Results

BLUE Desktop Analysis

Historic mussel data reviewed was obtained through USFWS and WVDNR. Remote sensing data reviewed included US Geological Survey (USGS) 7.5-minute topographic mapping, geologic mapping (USGS), digital elevation models (USGS), and orthophotography (from ESRI©). Remote sensing data was obtained through the US Department of Agriculture's Natural Resource Conservation Service Geospatial Data Gateway website: https://datagateway.nrcs.usda.gov/.

An informal USFWS Information for Planning and Consultation (IPaC) search was conducted for the Bluestone River within BLUE (USFWS 2022). Although the IPaC identified seven federally listed mussels as having the potential to occur within the river, no historic records of federally listed species within the basin are reported by WVDNR.

The West Virginia Mussel Survey Protocol (WVDNR 2022) lists the Bluestone River as a Group 1 stream because it is considered wadeable and is not known to have extant populations of federally threatened or endangered mussel species.

Historic mussel data within BLUE provided by WVDNR (Kevin Eliason, Mussel Biologist, WVDNR, personal communication 2/17/2022) included data from three survey events in 1984 (survey by USFWS), 2007, and 2017. All surveys combined found seven species including 117 live mussels and 257 weathered dead shells. Mussels (or the lack-there-of) were found at six sites between the Mountain Creek Lodge and the downstream end of BLUE near the boat launch and beginning of the lacustrian habitat influenced by the Bluestone Dam. *C. tuberculata* was the most abundant species found alive followed in order by *L. cardium*, *E. dilatata*, *A. ligamentina*, *A. marginata*, and *Lampsilis fasciola*. *T. verrucosa* was represented only by weathered dead shells. Of the 117 live mussels found, 106 were found in 1984 with no mussels found in 2016. Although the 2016 data was a bank search that would normally only encounter relic shells, it is notable that 29 relic shells were found less than 80 meters away in 1984. The 2016 and 1984 search areas likely overlapped in survey extent.

BLUE Field Survey

BLUE Survey Conditions

Surveys were only conducted under favorable conditions. Several field visits were cut short or disbanded due to heavy rainfall or forecast heavy rainfall that increased turbidity and/or flow to the extent that survey quality would be degraded. Although this did affect mobilization effort and schedule, it did not affect survey effort. All surveys that were started were completed, though some survey trips or days were abandoned and rescheduled.

Visibility in the Bluestone River and Little Bluestone River were excellent during all surveys, ranging from two to three meters. Flow at all survey locations was workable.

BLUE Qualitative Survey (Timed Searches)

Mussel surveys at nine sites in BLUE occurred between 1 July 2022 and 30 September 2022. Eight sites were located on the Bluestone River with one site located on Little Bluestone River. Despite its name, Little Bluestone River is a small creek. Total search time for all qualitative surveys was 578 minutes and varied from 60 to 74 minutes per site. Mussel detection rate in BLUE was 0.0007 mussels per minute of qualitative search. Live mussels were found at only one site (Bluestone 6). No semi-quantitative transect surveys were triggered. Four live adult *C. tuberculata* were found at Bluestone 6 and one weathered fragment of a *C. tuberculata* was found at Bluestone 8. All four live *C. tuberculata* were between 83 and 96 mm, all large adults found in cobble, sand, and silt substrate composition.

During area reconnaissance in April of 2022, weathered-dead and fresh-dead shells of *Pyganodon grandis* and *Utterbackia imbecillis* were found approximately 800 meters downstream of the survey extent at the Old Mill boat launch where the riffle/pool habitat of the Bluestone River transitions to the dam influenced lacustrian habitat of Bluestone Lake.

BLUE Mussel Habitat

The Little Bluestone River is a small creek with just over 8 km of perennial flow. Within the park, it varies from 5 to 14 meters in width. Near its mouth with the Bluestone River, substrates included bedrock, cobble, gravel, boulder and sand. Though silt was present in pools, it was not a common substrate near the survey site. The survey site was shifted downstream because the stream quickly became too small to support mussels. The survey site on Little Bluestone River was dominated by cobble, gravel, and sand in descending order of dominance (Table 8). Bedrock was present not far below the substrate surface.

The Bluestone River is a small river with a high riffle frequency. Most of the stream is wadeable. Average width at survey locations was 30.7 meters. Substrates in the Bluestone River within the study area are dominated by cobble with boulder, sand, and gravel also occurring in substantial amounts. The most common substrate composition encountered was cobble, gravel, and sand (Table 8). Although little bedrock was observed at the substrate surface at the survey sites, more bedrock was visible between sites in BLUE than was observed in the New River.

The Bluestone River drops approximately 60 meters in elevation over the 16.8-kilometer reach within BLUE (Slope = 0.00325). Its slope within the study area falls between the slopes of the New River and the steeper slope of the Gauley and Meadow rivers. Discharge in the stream varies from ~70 cubic feet per second to over 7,000 cubic feet per second (USGS 2023; Figure 4).

Table 8. Dominant substrates reported by each survey diver at each site for qualitative timed search for a mussel survey of the Bluestone River and Little Bluestone River within BLUE.

Site	Diver 1 Substrates (in order of dominance)*	Diver 2 Substrates (in order of dominance)*
Bluestone River 1	C, G, SA	C, SA, G
Bluestone River 2	B, C, G	C, SA, G
Bluestone River 3	C, B, SA	C, B, SA
Bluestone River 4	B, C, G	C, G, B
Bluestone River 5	C, SIL, B	B, C
Bluestone River 6	C, SA, SIL	C, G, B
Bluestone River 7	C, G, SA	C, SA, BR
Bluestone River 8	C, SA, B	C, SA, BR
Little Blue Stone 1	C, G, SA	C, G, SA

* SIL=Silt; SA=Sand; G=Gravel; C=Cobble; B=Boulder

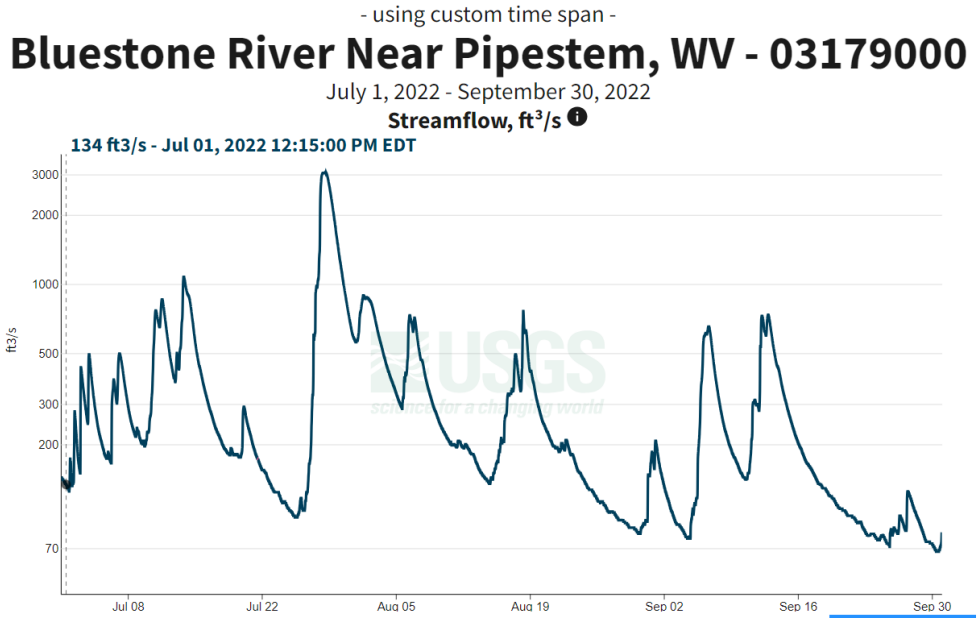


Figure 4. Discharge in cubic feet per second of the Bluestone River reported at the USGS stream gage near Pipestem, WV from July through September 2022 (USGS 2023).

NERI Conclusions

NERI Mussel Community Composition

Mussel diversity in the New River is low compared to the rest of the Kanawha River system, both in this study and in historic work within the basin. The majority of mussel diversity within the Kanawha River basin does not extend above Kanawha Falls, 16.3 river kilometers downstream of Cunard River Access (downstream most survey site). Kanawha Falls is a natural barrier to upstream migration of mussels and many of their fish hosts (Messinger and Chambers 2001). While mussel diversity in the New River has likely always been low, compared to other rivers of its size in the region, two species have not been reported since 1984 (*L. fasciola* and *P. grandis*). Assuming these records represent correct identification, and assuming these species were naturally occurring in the New River, they appear to be extirpated from the New River.

Cyclonaias pustulosa (pimpleback) was neither found during this project, nor included in the WVDNR data, however it was communicated that two juveniles of this species were reported from the New River 3.5 kilometers upstream of Meadow Creek River Access in 2003. Photographs of these individuals were reviewed by an expert and species identification was confirmed. They are believed to have been introduced via fishermen translocating catfish infested with *C. pustulosa* glochidia (Janet Clayton, Former Mussel Biologist, WVDNR, 3/24/20230. Time will tell if the species takes a foothold and establishes a reproducing population.

Community composition for this project was heavily dominated by *A. ligamentina* (88.4%), with 10.9% of the overall capture being *C. tuberculata* and other species found in very low numbers.

Pre-2000 data provided by WVDNR is problematic for comparison to data from this project or other recent surveys in the basin. Many of the historic records are from museum records and some collection was likely “cherry-picking” desired species and individuals. However, it does appear that *E. dilatata, L. cardium, L. subviridis,* and *T. verrucosa* likely composed greater proportions of the population than they do today.

WVDNR data included from 2000 through 2010 appear to be derived from more standard surveys and were more suitable for comparison, thus it was used for historic comparison. Including live and fresh dead individuals, data shared by WVDNR shows a higher dominance by *A. ligamentina* and a lower percentage of *C. tuberculata* than was encountered during survey efforts for this project.

Species rarely encountered during 2022 NERI survey were also scarce in surveys between 2000 and 2010 (Table 9). Although *L. subviridis* was not encountered during the NERI 2022 survey, only one fresh dead relic of 5,034 total mussels was found between 2000 and 2010 (0.02%). One live individual of this species was found later during a bridge replacement survey in 2013. *L. subviridis* has not been encountered within NERI since 2013 according to WVDNR records. Though the mussel community found during the 2022 NERI survey has changed some from the 2000 to 2010 reported community, it is still very similar.

Table 9. Relative abundance of the mussel community reported from WVDNR (2000–2010) versus the mussel community found in the 2022 NERI Survey.

Species	2000–2010 Percentage	2022 NERI Survey Percentage
Actinonaias ligamentina	95.13%	88.40%
Cyclonaias tuberculata	1.73%	10.88%
Eurynia dilatata	0.43%	0.32%
Tritogonia verrucosa	0.02%	0.23%
Lampsilis cardium	0.00%	0.14%
Alasmidonta marginata	0.02%	0.05%
Lasmigona subviridis *	0.02%	0.00%
Unidentified	2.67%	0.00%

* *Lasmigona subviridis* record is a fresh-dead shell

NERI Mussel Density

Multiple areas of high mussel density occur in the 2022 NERI survey extent. Peak density along the Meadow Creek Access transect (19.2 mussels per square meter) and the NR03 transect (13.8 mussels per square meter) was considered very high. The average mussel density for all transects was 1.19 mussels per square meter. The survey methods employed were selected for maximizing detection of species diversity and do not find every mussel. The actual density of mussels at transect locations in the New River in NERI is, without question, higher than what is reported here.

In many cases, mussel density, diversity, and growth are highest below dams (Barnett et. al. 2001). This phenomenon has been attributed to greater amounts of food and nutrients mixed in the water column and entrapment of excessive fines and pollutants behind dams. We did not see the same correlation in diversity and did not measure growth, however it does appear that density may have been greater at our upstream sites which are closest to the Bluestone dam. The two most dense sites, Meadow Creek Access and NR03, were at the upstream end of the project extent. However, this relationship did not hold true for every site as instream habitat dictates the capacity to harbor mussels.

All bedrock-dominated substrates areas encountered during transects survey contained live mussels, though without exception these were either in seams filled with heterogeneous substrates or on the edge between bedrock and heterogeneous substrates. Very few mussels were found in fast flowing water, which causes increased shear stress and tends to have armored substrates that make it difficult for mussels to find purchase or dig down during winter. The majority were found in medium flow in runs with some mix of Cobble, Gravel, and Sand dominated substrates.

The area upstream of Thayer River Access, where a high mussel density was observed in an area that was not surveyed, may have been more dense than any site surveyed for the 2022 NERI project. Surveyors were not outfitted to snorkel/SCUBA at the time, but a quick underwater video was taken that showed at least 37 live mussels in a 1 minute 20 second video. Visibility in the New River at the

time was excellent, and while traveling upstream from that location to NR12, it appeared that the dense mussel concentration may extend upstream for 50 meters or more.

The most common substrate composition recorded for transects (Cobble, Gravel, Sand [Cobble being the most dominant, followed by gravel, then sand]) accounted for 14% of the transect area surveyed yet held 33% of the live mussels encountered. The substrate composition of Gravel, Sand, Cobble represented only 2% of the transect area surveyed but contained the highest density of mussels (10.15 mussels per m^2 or 19% of mussels found [Figure 4]). The density of mussels found in Gravel, Sand, Cobble sections was doubtlessly inflated by the high density of one specific site (Meadow Creek Access), but this appeared to be the best mussel habitat at the best site inventoried during the 2022 NERI survey.

When substrate communities for qualitative timed searches are lumped without regard to order of dominance (e.g., silt, cobble, bedrock = bedrock, silt, cobble), the substrate community Cobble, Gravel, Sand contained more mussels than any other substrate community encountered (Figure 5). It is surprising that the community Bedrock, Boulder, Gravel contained nearly 100 mussels (Figure 6), however these all come from one site where the diver reported seams in the bedrock in which heterogeneous substrates contained dense live mussels. The bedrock itself did not contain any live mussels.

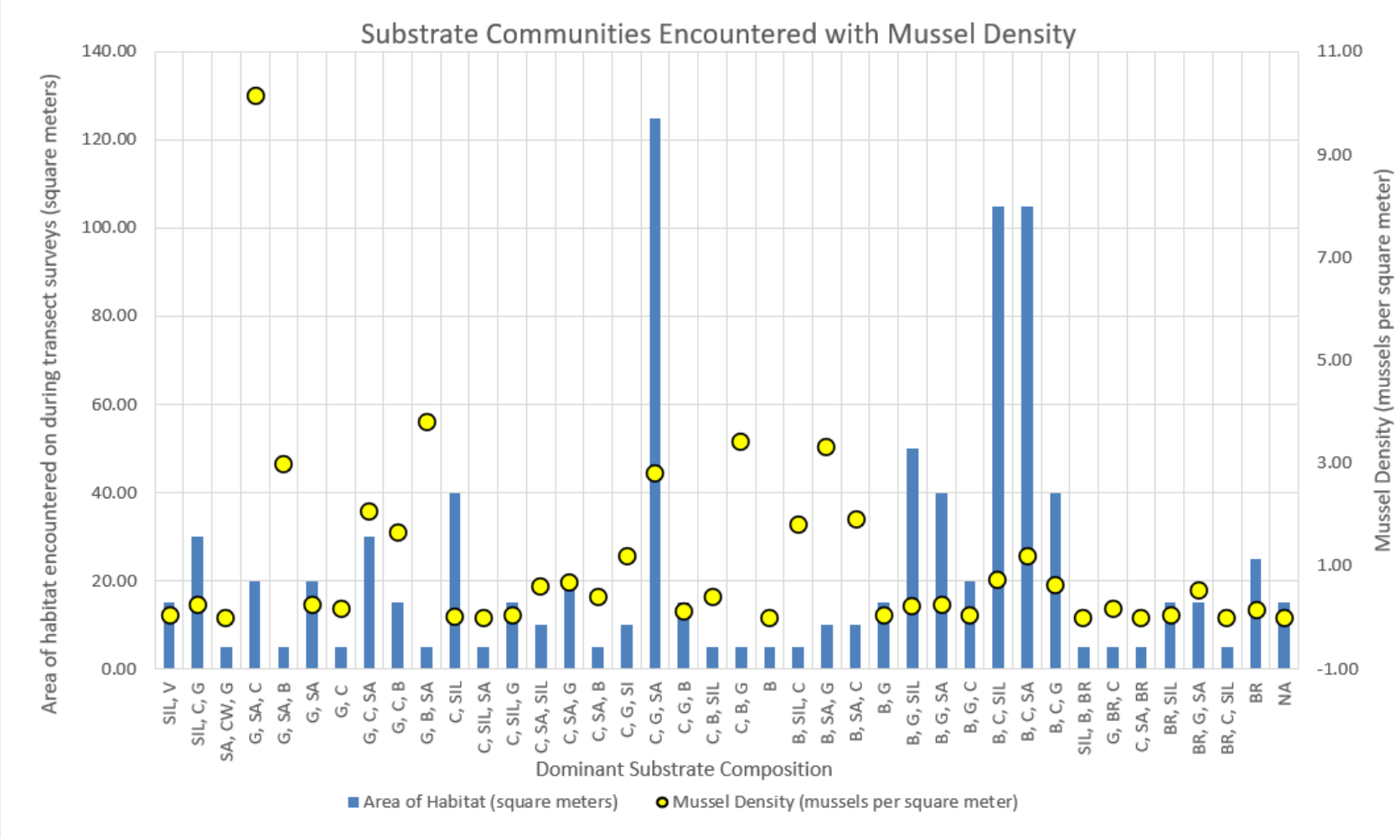


Figure 5. Transect substrate composition with mussel density (mussels per m^2) in NERI, 2022. Substrate components are listed in order of dominance. *SIL=Silt; SA=Sand; G=Gravel; C=Cobble; B=Boulder; BR=Bedrock; CW=Course Woody Debris; V=Aquatic Vegetation.

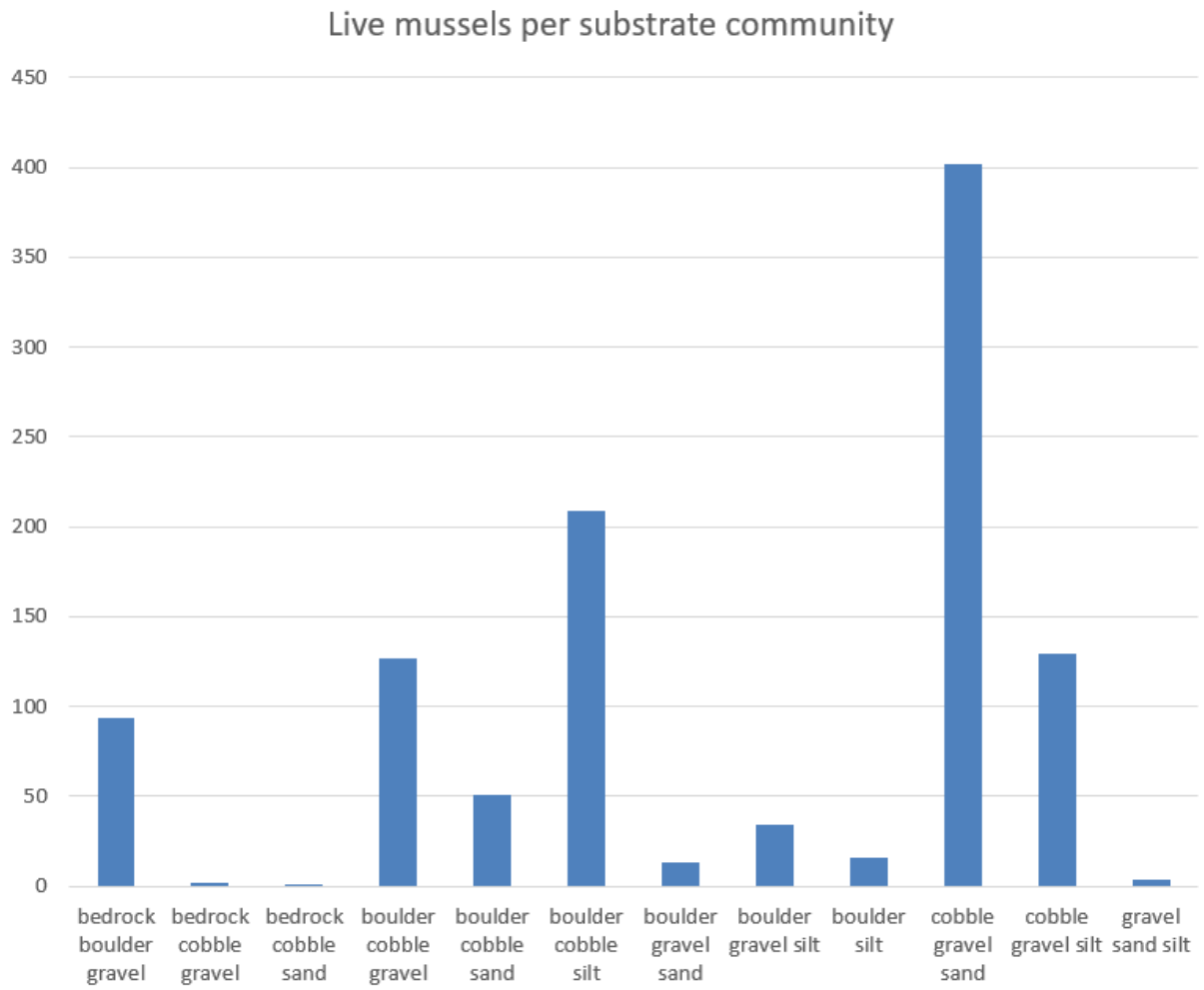


Figure 6. Number of mussels found in each substrate community when communities are lumped without considering order of dominance (e.g., boulder cobble gravel = gravel cobble boulder).

Given the high mussel density found at multiple sites throughout the project extent, we consider the possibility that the entirety of the New River within NERI functions as one mussel bed, with periodic interruptions in areas of unsuitable habitat (bedrock, fast rifles, clay, and silt deposits). The beneficial effects of freshwater mussels on aquatic ecosystems and water quality have been well documented. They facilitate nutrient cycling, positively affect stream habitat, impact food webs (both by being prey themselves and by consuming microorganisms) and mitigate nutrient pollution (Vaughn and Hoellein 2018). Considering the immense mussel biomass within NERI, the benefit to water quality is undoubtedly a boon to the aquatic systems downstream in the New River (the water supply for Fayetteville, WV), and in its receiving stream, the Kanawha River.

NERI Mussel Recruitment

Evidence of mussel recruitment was documented through the presence of juveniles and through length histograms (Figure 5). Mussel lengths are included in Appendix A. Juvenile mussels are documented at a much lower rate than adult mussels for all survey methods where sediment is not

excavated and sorted at the surface. This is partially because of the size of juvenile mussels, but also because juveniles tend to stay buried below the sediment surface more often than adult mussels (Kemble et. al. 2020). Juvenile mussels were found of the two most abundant species encountered (*A. ligamentina* and *C. tuberculata*). Both *A. ligamentina* and *C. tuberculata* populations in the New River are reported to reach sexual maturity between four and six years of age (Jirka & Neves 1992). Determining sexual maturity in mussels requires dissection of the mussel (excluding actively breeding individuals) which was not carried out for this project. For the purposes of this project, *A. ligamentina* individuals encountered were categorized as juvenile if they were less than 65 millimeters in length and individuals of *C. tuberculata* were categorized as juvenile if they were less than 55 mm in length. Including both qualitative and semi-quantitative sampling, 43 *A. ligamentina* (2.2%) and 8 *C. tuberculata* (3.4%) juveniles were found giving evidence of recruitment for these species. No juveniles were found of *E. dilatata*, *T. verrucosa*, or *L. cardium*. Given the extreme scarcity of these three species within the project extent, both in this study and in previous work in the basin, finding juveniles would not be expected without much more extensive effort. Since the proportion of *E. dilatata, T. verrucosa*, and *L. cardium* to the total capture is similar to surveys conducted between 1990 and 2000, it can be assumed that some recruitment has occurred in the meantime, though we saw no evidence for or against recent recruitment of these species.

Although length can be affected by factors other than age in freshwater mussels, length within the same species in the same stream extent roughly correlates with age, hence, a length histogram can give an idea of age classes and therefore recruitment. A length histogram for *A. ligamentina* shows the expected bell curve (Figure 7). The bell curve is not perfectly symmetrical and is weighted toward the long (older) end. A length histogram of *C. tuberculata* similarly skews toward larger individuals. This is at least partially because mussel detectability increases with increased size. There is also a negative relationship between growth and longevity in freshwater mussels (Haag and Rypel 2011) that should cause clustering in length histogram bins toward the long end of the histogram (Figure 7).

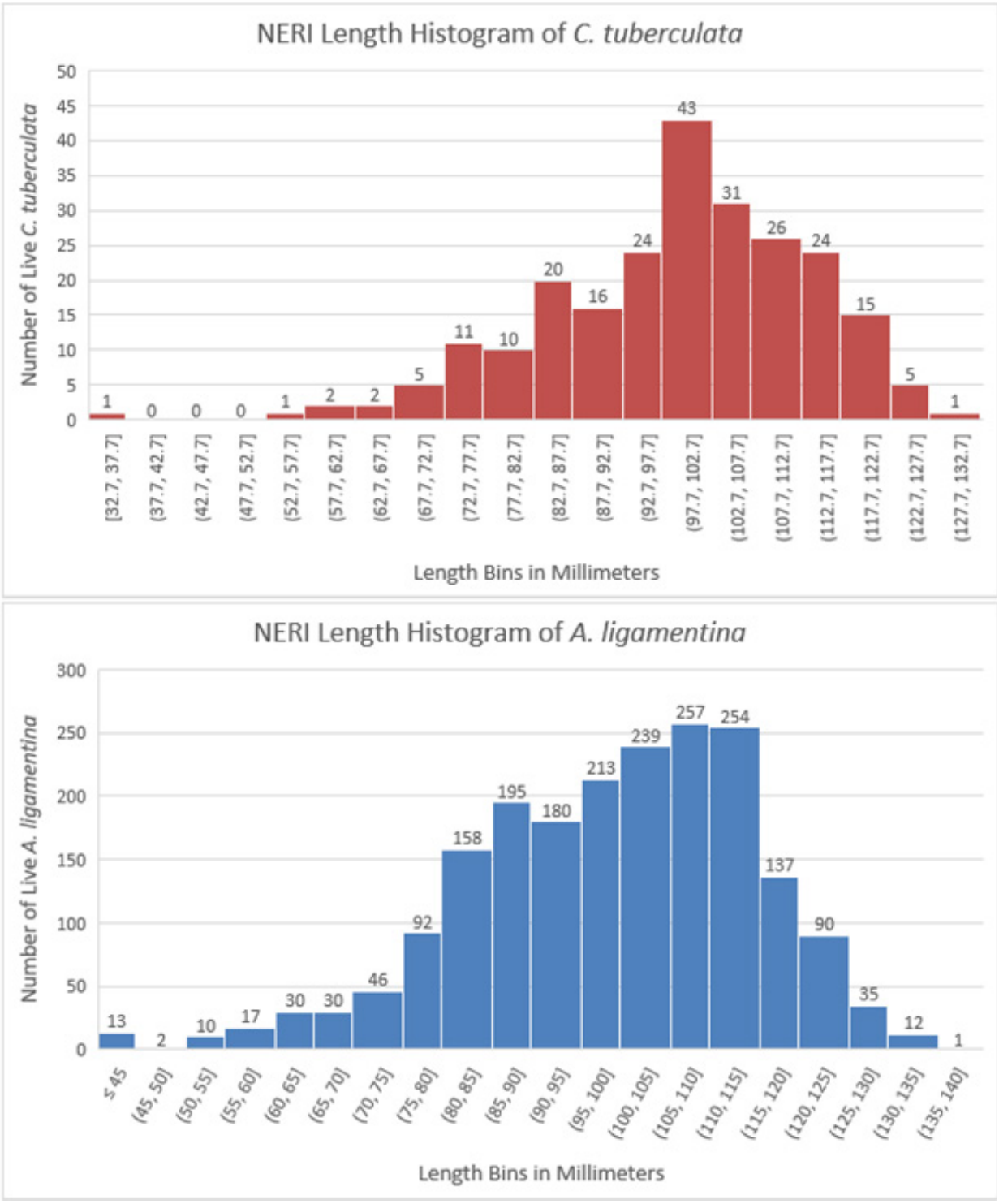


Figure 7. Length histogram of *A. ligamentina* (top) and *C. tuberculata* (bottom) found, NERI 2022.

NERI River Access Sites

Four of the seven sites surveyed in NERI in 2022 that yielded no live mussels during qualitative searches were River Access sites. Of the six access sites where mussels were found, two sites (Army Camp and Thayer) had only a single live mussel. It seems likely that people wading in the stream loading boats or engaging in other water recreation at access sites has dislodged or otherwise eliminated many mussels from the sediment in the wading areas. Of the access sites where transects were triggered (n=4), Brooklyn and Meadow Creek were the only access sites where live mussels were found directly within the loading area according to survey divers. While divers found quite a few mussels in the loading area at Brooklyn, Meadow Creek had very few within five meters of the bank in the vicinity of the ramp. The access location at Brooklyn was much less developed (no ramp, steep muddy access, limited parking) and is assumed to get less foot traffic than the other access sites surveyed in NERI. This likely contributes to greater mussel numbers around the access location.

Considering the access locations are long established sites that see nearly daily disturbance during summer, it is unlikely that recreational activity at access sites, excluding Brooklyn and Meadow Creek, has much impact on the current mussel population in NERI (though presumable they were impacted shortly after establishment). Likewise, maintenance and modification of those sites would be expected to have only minor impacts to current mussel populations provided the work was contained in the wadeable portions directly surrounding the access location and that work caused minimal sedimentation.

Species Rarely Encountered During 2022 Survey at NERI

Several species were encountered in very low numbers during the 2022 surveys of NERI. These include *E. dilatata*, *L. cardium*, *T. verrucosa* and *A. marginata*. These species all attain a size as adults that makes them reasonably detectable during surveys, hence they are considered to be very rare in the basin based on the results of this survey. One species not encountered, *L. subviridis*, is very small and can be difficult to find when present. Given the low numbers found historically, we do not consider the lack of this species in the 2022 capture to definitively show “absence” of the species in the survey reach. To increase the likelihood of finding this species in future efforts, we recommend targeted search for the species in areas of appropriate habitat with high effort potentially including substrate excavations. *L. subviridis* is a species that thrives in slow water habitats with high occurrence of fine sediments. We suggest targeting pools, eddies, and slow runs with high silt/sand components to increase the odds of encountering this species.

Enhancement of mussel species that are rare in the basin via brood stock from propagation facilities could be considered for the New River within NERI. If mussel stocking efforts are undertaken, careful consideration should be given to finding genetically appropriate brood stock. Meadow Creek River Access, NR03, and Brooklyn River Access could present locations to collect brood stock for propagation of several species.

NERI Management Recommendations

Excluding Brooklyn and Meadow Creek river access sites, NERI river access locations had few to no live mussels. We believe that maintenance and upgrading of these sites can be conducted with minimal adverse impacts to NERI mussel populations provided adequate erosion and sedimentation controls are utilized and projects do not involve extensive earthwork.

The mussel *Lasmigona subviridis* was not found during the 2022 NERI survey efforts. This is a rare species that is very small and difficult to detect. We do not believe that this survey definitively proves absence of this species in the river. In order to detect this species, we recommend more extensive effort, including excavations, focused on habitat for the species. *Lasmigona subviridis* in particular, may be a candidate for population augmentation using lab propagated mussels if appropriate genetic strains are available.

The location upstream of the Thayer River Access Site where surveyors noticed a high-density mussel concentration was not a survey location and was not surveyed. The area appeared to have a very high mussel density and may be a good location to find species that are rare in the basin.

GARI Conclusions

Habitat surveyed within GARI was not ideal for supporting mussel populations. In their pre-settlement condition, the Meadow and Gauley rivers were steep powerful streams with armored substrates that likely made mussel burrowing more energy expensive and flows likely produced high stress on the animals. Little historic mussel data is available, but mussel populations were likely historically sparse. Since settlement, the basin has a history of coal mining and oil and natural gas development to the extent that the Gauley River was referred to as "the river of ink" in the 1800s. The Summersville dam was completed in 1966, after which water releases create a greatly fluctuating aquatic environment. Though it varies from species to species, in general, freshwater mussels are not tolerant of hydrologic instability, and all streams surveyed in GARI are "flashy", meaning they rise and fall quickly with changes in rainfall. In addition, during the Gauley Season the Gauley River is managed to maximize whitewater boating opportunities by holding water at night to build up water for whitewater release during the day. This creates major fluctuation in water level and velocity (Figure 8) as well as temperature, (Summersville Dam is a low-water release, drawing deep water that is cooler than water at the surface).

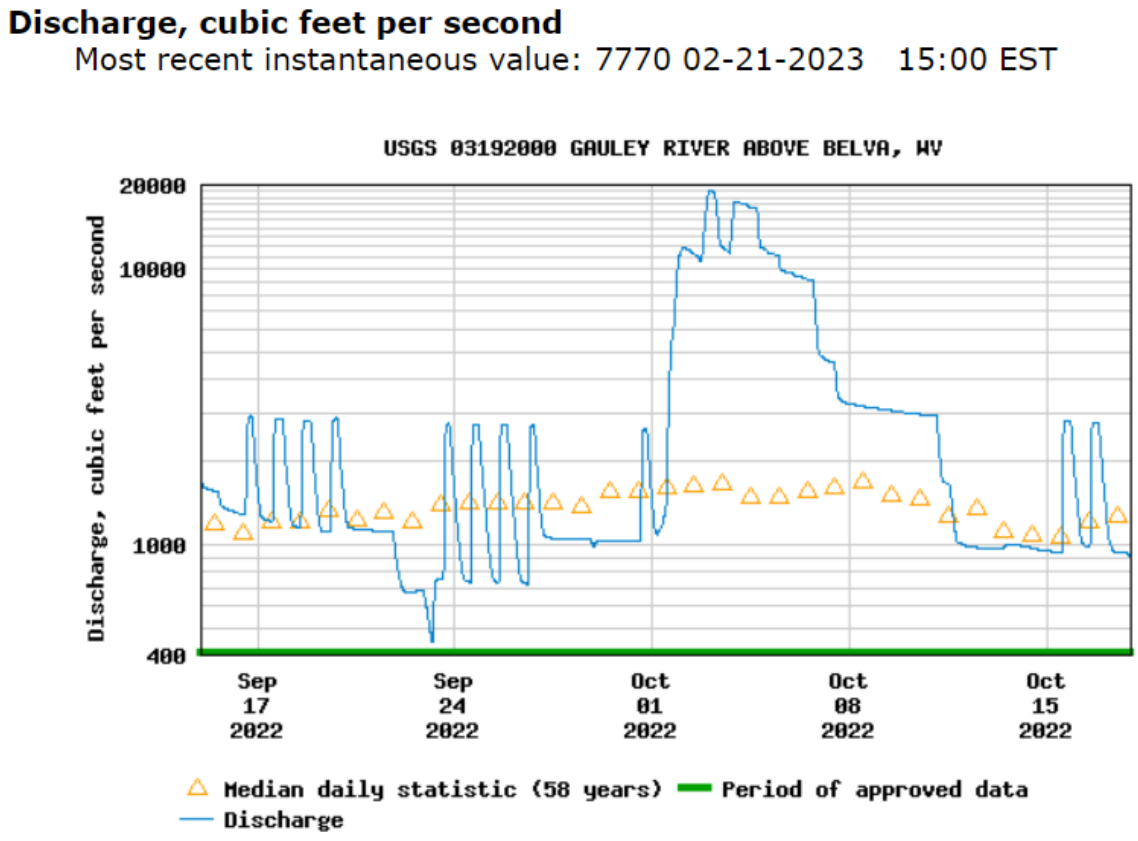


Figure 8. Discharge of the Gauley River below Belva, WV during the "Gauley River Season" 2022. The graph shows the daytime peaks and nighttime troughs in stream discharge measured in cubic feet per second.

No live native unionid mussels nor any evidence of mussels was found at any sampling location during the survey of the Gauley and Meadow rivers and Dogwood Creek within GARI. No evidence of mussels was found while moving between sites.

Although substrates/flows encountered were not ideal for dense mussel populations, usable habitat was present in both the Gauley and Meadow rivers. The findings of this study do not preclude the presence of mussels altogether, though they do show that if extant populations occur, they are so sparse that detection will require extensive effort.

With the exception of *Lasmigona subviridis*, native unionid mussels known from the basin above Kanawha Falls are all parasitic on fish as larva (glochidia) and drop off as free-living mussels after a period of development on the fish (Watters et. al. 2009). Mussel transport into the Gauley River from the New River and Kanawha River (at least above Kanawha Falls) through fish migration is nearly certain to occur, at least to some extent. *Actinonaias ligamentina*, the most abundant species in the New River, utilizes Centrarchids (sunfish) among other fish hosts (Illinois Natural History Survey 2017). Largemouth bass, smallmouth bass, and several species of sunfish were seen by divers in the Gauley River during this project as well as in concurrent surveys in the New River. A percentage of largemouth and smallmouth bass populations migrate between larger streams and smaller streams seasonally (Gunderson et al 2002, Karchesky and Bennett 2003). Whether or not reproductive mussel populations occur in the Gauley River, occasional individuals are likely present though they may not persist. Based on both proximity to the New River and presence of better mussel habitat (slower flows with a higher proportion of fine sediment) in the lower sections of the Gauley River, the downstream most portion of GARI (near Upper Swiss River Access) is the most probable reach to find live mussels.

Dogwood Creek was not suitable to support mussels at the site surveyed. Dogwood Creek drops nearly 100 vertical meters over a linear distance of 400 meters immediately upstream of the Meadow River. It is too steep, too small, and too armored (much of the substrate is huge boulders that essentially act as bedrock) to support mussel populations from the Meadow River to above the railroad grade.

The Gauley and Meadow rivers are relatively steep, fast, and armored with few fine sediments as compared to other rivers in the region. The harsh habitat conditions in the Gauley and Meadow rivers likely make it difficult for mussel populations to take hold and mussels in GARI were likely always sparse. The added fluctuation in river height, velocity, and temperature caused by low water dam release and water holding during the Gauley River season likely creates additional problems for aquatic invertebrates, mussels included. Historically extant mussel populations undoubtedly declined given the history of mining, industry, and water quality degradation in the basin that occurred in the 1900s. While water quality was subsequently improved, coal extraction still occurs in the basin. Mussel populations are slow to recolonize or recover in ideal conditions and would be further slowed in the naturally harsh conditions of the Meadow and Gauley rivers within GARI.

From the perspective of park maintenance, while it is possible that some mussels do occur in the Gauley and Meadow rivers, upkeep of River Access locations is unlikely have adverse impacts to

mussels at the population level except for activities that cause major sedimentation that carries downstream to the Kanawha River.

No live mussels were found during the 2022 GARI mussel surveys, nor were any relic shells or even shell fragments. While it is plausible that sparse mussel populations could persist in the Gauley River near the downstream portion of GARI near Swiss where the stream gradient drops and stream widens, it appears evident that upstream portions of the Gauley River and all of the Meadow River are either not occupied, or that scarce mussels are so infrequent as to be nearly undetectable. If future work is conducted with mussels in GARI, it is our recommendation that it focus on the most downstream extent of the park. If mussel populations do occur upstream of Swiss, the easiest way to identify potentially occupied sites may be to encourage boaters to submit photos of relic shells online to a site hosted by the NPS. This would undoubtedly yield a high volume of photos of the exotic Asian clam (*Corbicula fluminea*) which was sparse but ubiquitous in the Gauley and Meadow rivers, though these could be easily sorted out.

A former NPS employee recounted to the NARI, GARI, and BLUE aquatic ecologist that they found a freshwater mussel 11–13 kilometers upstream from the mouth that was described as having “dark stripes on a light background” (NPS Aquatic Ecologist, Personal Communication,7/20/2023). Though anecdotal, this does provide evidence of historic mussels in the Gauley River a few kilometers downstream of the Upper Swiss Access site.

GARI Management Recommendations

Given the lack of mussels found at all survey locations, we do not believe that management activities in GARI or recreational activities in the park are likely to adversely affect mussel populations provided that sufficient erosion and sedimentation controls are utilized and activities do not produce suspended solids that could affect populations in the Kanawha River downstream.

The surveyors felt the best chance for locating extant mussel populations in GARI is in the downstream portion of the Gauley River near the Upper Swiss Access Site. Future efforts to locate native freshwater mussels in the Gauley River and tributaries in GARI should include this location. One potential source for information on mussels in GARI is to enlist the assistance of boaters on the river. Establishment of a “citizen science” initiative where park visitors submit photos of mussel shells encountered while on the river could provide information to guide future surveys.

BLUE Conclusions

Habitat in BLUE appeared to be fair for mussels. Although it didn't have the deep loose substrates that were often found in the New River, substrates looked adequate to support mussel populations in most reaches, excluding some areas where bedrock was prevalent or was lying just below the surface.

Based on the scant historic data available, higher mussel numbers, distribution, and diversity were expected. Surveys in 1984 found 106 live mussels at two locations. Surveys in 2007 found 11 live mussels at three locations. Evidence of mussels during 2022 was found at only two of nine sites with live mussels only found in one location. We do not believe that the perceived decline in mussel numbers is an artifact of methodology or sampling locations. 2022 survey personnel conducted a bank search for shells at a location where USFWS found 14 live mussels and 29 relic shells in 1984 (WVDNR 2022). No mussels were found in adequate habitat at Bluestone 6 and Bluestone 7 which are on either side of a USFWS 1984 site that found 92 live mussels and 219 relic shells.

The fall off in mussel populations from 1984 to 2007 and to 2022 is extreme. Habitat data collected did not leave any indication as to what the cause might be. Divers did report that although the substrates were not greatly embedded, in general they were somewhat compacted and more bound together than substrates in the New River. It is unknown if this is a relatively recent condition or if it was typical of the stream in 1984 and prior.

The Bluestone River basin has a history of coal mining. WV Department of Environmental Protection and WVDNR have issued fish advisories for the Bluestone River in the past based on presence of polychlorinated biphenyls (PCBs) and Mercury (WVDHHR 2010). A 2018 species assessment for the candy darter describes declines in candy darter population in the Bluestone River as early as 1907 that were attributed to coal mining degradation. Naturally occurring populations of the species are now entirely extirpated from the Bluestone River (USFWS 2018). It is possible that, over the course of time, mining related water quality degradation has taken a toll on the mussel population in the Bluestone River within BLUE. This could occur both through direct stress to the mussels themselves, declines in fish hosts, or in separation of fish hosts from mussels.

While pollution from mining and other water quality degradation has the potential to cause mussel declines, major die-offs have occurred and are theorized to be caused by drought, bacterial infection, parasites, and densovirus. In many cases mussel die-offs are assumed to be caused by multiple stressors (DuBose et. al. 2019, Henley et. al. 2019, Richard et. al. 2020).

Very little can be concluded from the four live *C. tuberculata* apart from presence at site Bluestone 6. All four mussels were found in a transitional area between more armored substrates and a silt dominated eddy along the left descending bank. It may be worthwhile for future work to focus on similar transitional areas on the edge of soft sediments that have some larger anchoring components like cobble, as well as soft sediments that make burrowing and movement easier for mussels.

It is notable that all live mussels encountered were very large (83 to 96 mm in length) and very old mussels. No young individuals were encountered. Recruitment in the survey extent is likely very low.

It is possible that freshwater mussels are functionally extirpated from this portion of the stream (with only non-reproductive adults remaining), though it should be noted that juveniles are much more difficult to find than adults and with the low abundance observed, finding juveniles, if present, would be unlikely without extensive effort.

Finding fresh dead *P. grandis* and *U. imbecillis* at the Old Mill Campground boat launch, though not surprising, is interesting. Neither species was reported from the Bluestone River in the data shared by WVDNR (though their data extent may not have included Bluestone Lake). At least within the data shared by WVDNR for BLUE, NERI, and GARI, *P. grandis* has not been documented in the New River basin since 1969. *U. imbecillis* was not found in the dataset at all. Both of these species are silt adapted species that thrive in lacustrian environments. They are occasionally found in ponds, likely transported as glochidia encysted on fish, potentially stocked by humans.

BLUE Management Recommendations

Given the very few mussels found within BLUE (four live mussels at one site), we do not believe that management or recreational activities are likely to adversely affect mussel populations provided that sufficient erosion and sedimentation controls are utilized.

A more extensive survey effort at site Bluestone 6 could potentially find additional live mussels. Additional efforts in the park should consider that all the live mussels found during the 2022 NERI survey were found in the transition between a cobble dominated riffle and a silt dominated pool.

The Bluestone River within BLUE could be a potential location for population augmentation with lab propagated mussels if appropriate genetic strains are propagated. Prior to any efforts a better understanding of why mussels have declined in the basin will be key to successful augmentation.

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Appendix A: Mussel Capture Data

Table 10. Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	Army Camp	*A. ligamentina*	adult	unk	73	–
Area	Brooklyn	*A. ligamentina*	adult	unk	78	53.3
Area	Brooklyn	*A. ligamentina*	adult	unk	87.2	61.2
Area	Brooklyn	*A. ligamentina*	adult	unk	88.4	59.4
Area	Brooklyn	*A. ligamentina*	adult	unk	88.4	60.3
Area	Brooklyn	*A. ligamentina*	adult	unk	89.6	61
Area	Brooklyn	*A. ligamentina*	adult	unk	89.8	59.1
Area	Brooklyn	*A. ligamentina*	adult	unk	92.3	62.8
Area	Brooklyn	*A. ligamentina*	adult	unk	95.3	64.4
Area	Brooklyn	*A. ligamentina*	adult	unk	96	64.6
Area	Brooklyn	*A. ligamentina*	adult	unk	97.7	62.8
Area	Brooklyn	*A. ligamentina*	adult	unk	97.8	64.7
Area	Brooklyn	*A. ligamentina*	adult	unk	98.3	62.3
Area	Brooklyn	*A. ligamentina*	adult	unk	100.3	67.9
Area	Brooklyn	*A. ligamentina*	adult	unk	100.4	63.6
Area	Brooklyn	*A. ligamentina*	adult	unk	100.8	65.4
Area	Brooklyn	*A. ligamentina*	adult	unk	103.9	67.5
Area	Brooklyn	*A. ligamentina*	adult	unk	104	63.8
Area	Brooklyn	*A. ligamentina*	adult	unk	105.5	74.1
Area	Brooklyn	*A. ligamentina*	adult	unk	105.5	80.7
Area	Brooklyn	*A. ligamentina*	adult	unk	106	73.2
Area	Brooklyn	*A. ligamentina*	adult	unk	108.2	72.3
Area	Brooklyn	*A. ligamentina*	adult	unk	109.2	69.5
Area	Brooklyn	*A. ligamentina*	adult	unk	109.5	73.9
Area	Brooklyn	*A. ligamentina*	adult	unk	110.1	69.9
Area	Brooklyn	*A. ligamentina*	adult	unk	110.8	71.7
Area	Brooklyn	*A. ligamentina*	adult	unk	111.3	77.8
Area	Brooklyn	*A. ligamentina*	adult	unk	111.5	65.9
Area	Brooklyn	*A. ligamentina*	adult	unk	111.6	71.6
Area	Brooklyn	*A. ligamentina*	adult	unk	111.6	71.3
Area	Brooklyn	*A. ligamentina*	adult	unk	111.6	75.1
Area	Brooklyn	*A. ligamentina*	adult	unk	112.4	72.9
Area	Brooklyn	*A. ligamentina*	adult	unk	112.8	67.8
Area	Brooklyn	*A. ligamentina*	adult	unk	114	76.1

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	Brooklyn	*A. ligamentina*	adult	unk	114.2	77.2
Area	Brooklyn	*A. ligamentina*	adult	unk	114.8	71.6
Area	Brooklyn	*A. ligamentina*	adult	unk	116.3	78.1
Area	Brooklyn	*A. ligamentina*	adult	unk	116.7	75.8
Area	Brooklyn	*A. ligamentina*	adult	unk	116.9	76
Area	Brooklyn	*A. ligamentina*	adult	unk	117.5	71.2
Area	Brooklyn	*A. ligamentina*	adult	unk	124.4	78.9
Area	Brooklyn	*A. ligamentina*	adult	unk	125.3	79.1
Area	Brooklyn	*A. ligamentina*	adult	unk	127.1	78.4
Area	Brooklyn	*A. ligamentina*	adult	unk	–	71.2
Area	Brooklyn	*C. tuberculata*	adult	unk	82	71.8
Area	Brooklyn	*C. tuberculata*	adult	unk	85.8	76.5
Area	Cunard	*A. ligamentina*	adult	unk	65.9	54.9
Area	Cunard	*A. ligamentina*	adult	unk	85.5	54.5
Area	Cunard	*A. ligamentina*	adult	unk	88.4	58.7
Area	Cunard	*A. ligamentina*	adult	unk	88.5	58.6
Area	Cunard	*A. ligamentina*	adult	unk	90.8	63.7
Area	Cunard	*A. ligamentina*	adult	unk	92.7	62.6
Area	Cunard	*A. ligamentina*	adult	unk	94.5	58.9
Area	Cunard	*A. ligamentina*	adult	unk	96.4	63.1
Area	Cunard	*A. ligamentina*	adult	unk	97.2	65.5
Area	Cunard	*A. ligamentina*	adult	unk	100.8	65
Area	Cunard	*A. ligamentina*	adult	unk	100.8	69.4
Area	Cunard	*A. ligamentina*	adult	unk	102.1	68
Area	Cunard	*A. ligamentina*	adult	unk	102.1	68
Area	Cunard	*A. ligamentina*	adult	unk	102.5	65.9
Area	Cunard	*A. ligamentina*	adult	unk	103.4	72.7
Area	Cunard	*A. ligamentina*	adult	unk	104.1	68.4
Area	Cunard	*A. ligamentina*	adult	unk	105.1	72.1
Area	Cunard	*A. ligamentina*	adult	unk	106.8	72.3
Area	Cunard	*A. ligamentina*	adult	unk	110	66.3
Area	Cunard	*A. ligamentina*	adult	unk	114	72.3
Area	Cunard	*A. ligamentina*	adult	unk	114.4	73.1
Area	Cunard	*A. ligamentina*	adult	unk	114.5	69.4
Area	Cunard	*A. ligamentina*	adult	unk	116.2	75.1
Area	Cunard	*A. ligamentina*	adult	unk	116.2	79.3

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	Cunard	*A. ligamentina*	adult	unk	117.4	70.7
Area	Cunard	*A. ligamentina*	adult	unk	121.6	72.4
Area	Cunard	*A. ligamentina*	adult	unk	122.2	72.5
Area	Cunard	*A. ligamentina*	adult	unk	122.7	76.8
Area	Cunard	*A. ligamentina*	adult	unk	125.4	72.8
Area	Cunard	*A. ligamentina*	adult	unk	125.8	76.2
Area	Cunard	*A. ligamentina*	adult	unk	126.9	73.8
Area	Cunard	*A. ligamentina*	adult	unk	127	7.3
Area	Cunard	*A. ligamentina*	adult	unk	132	77.4
Area	Cunard	*A. ligamentina*	adult	unk	139.1	77.7
Area	Cunard	*C. tuberculata*	adult	unk	59.7	53.7
Area	Cunard	*C. tuberculata*	adult	unk	59.7	53.7
Area	Cunard	*C. tuberculata*	adult	unk	102.4	81.3
Area	Cunard	*C. tuberculata*	adult	unk	102.4	81.3
Area	Meadow Creek	*A. ligamentina*	juv	unk	45	–
Area	Meadow Creek	*A. ligamentina*	juv	unk	47	–
Area	Meadow Creek	*A. ligamentina*	juv	unk	55	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	80	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	81	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	82	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	84	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	87	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	88	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	91	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	93	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	97	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	98	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	98	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	100	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	102	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	103	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	Meadow Creek	*A. ligamentina*	adult	unk	104	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	104	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	104	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	108	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	108	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	108	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	109	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	109	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	109	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	112	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	113	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	115	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	117	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	117	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	117	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	118	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	118	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	119	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	119	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	120	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	121	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	121	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	121	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	121	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	121	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	121	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	122	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	124	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	124	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	125	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	126	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	128	–
Area	Meadow Creek	*A. ligamentina*	adult	unk	128	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	Meadow Creek	*A. ligamentina*	adult	unk	132	–
Area	Meadow Creek	*C. tuberculata*	juv	unk	39	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	64	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	73	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	74	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	75	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	76	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	78	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	82	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	83	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	85	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	87	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	87	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	88	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	89	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	92	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	94	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	95	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	97	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	97	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	97	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	98	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	99	–
Area	Meadow Creek	*C. tuberculata*	adult	unk	100	–
Area	NR 01	*A. ligamentina*	adult	unk	105.4	67.6
Area	NR 02	*A. ligamentina*	adult	unk	82.2	45.6
Area	NR 02	*A. ligamentina*	adult	unk	92.8	59.1
Area	NR 02	*A. ligamentina*	adult	unk	99.7	60.5
Area	NR 02	*A. ligamentina*	adult	unk	100	63.8
Area	NR 02	*A. ligamentina*	adult	unk	101.4	59.2
Area	NR 02	*A. ligamentina*	adult	unk	102.1	62.9
Area	NR 02	*A. ligamentina*	adult	unk	105.8	63.2
Area	NR 02	*A. ligamentina*	adult	unk	106.4	65.4
Area	NR 02	*A. ligamentina*	adult	unk	108.8	63.3
Area	NR 02	*A. ligamentina*	adult	unk	113.2	70
Area	NR 02	*A. ligamentina*	adult	unk	114.1	68.9

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 02	*A. ligamentina*	adult	unk	114.8	67.5
Area	NR 02	*A. ligamentina*	adult	unk	117.7	69.4
Area	NR 02	*A. ligamentina*	adult	unk	120	72.2
Area	NR 02	*A. ligamentina*	adult	unk	120.4	69.3
Area	NR 02	*A. ligamentina*	adult	unk	120.6	76.1
Area	NR 02	*A. ligamentina*	adult	unk	121.4	67.9
Area	NR 02	*A. ligamentina*	adult	unk	122.9	73.9
Area	NR 02	*A. ligamentina*	adult	unk	123.5	81.6
Area	NR 02	*A. ligamentina*	adult	unk	124.9	76.4
Area	NR 02	*A. ligamentina*	adult	unk	126.4	73.2
Area	NR 02	*C. tuberculata*	juv	unk	29.7	21.4
Area	NR 02	*C. tuberculata*	adult	unk	72.5	60.4
Area	NR 02	*C. tuberculata*	adult	unk	73	63.7
Area	NR 02	*C. tuberculata*	adult	unk	73.8	62.1
Area	NR 02	*C. tuberculata*	adult	unk	84.9	70.6
Area	NR 02	*C. tuberculata*	adult	unk	90.8	71.4
Area	NR 02	*C. tuberculata*	adult	unk	91.1	73.1
Area	NR 02	*C. tuberculata*	adult	unk	91.7	72.1
Area	NR 02	*C. tuberculata*	adult	unk	95.4	85.5
Area	NR 03	*A. ligamentina*	juv	unk	64	40.5
Area	NR 03	*A. ligamentina*	adult	unk	80.8	54
Area	NR 03	*A. ligamentina*	adult	unk	83	55.9
Area	NR 03	*A. ligamentina*	adult	unk	85.5	55.7
Area	NR 03	*A. ligamentina*	adult	unk	87.1	54.3
Area	NR 03	*A. ligamentina*	adult	unk	89.3	57.7
Area	NR 03	*A. ligamentina*	adult	unk	89.4	61.4
Area	NR 03	*A. ligamentina*	adult	unk	91.5	61.9
Area	NR 03	*A. ligamentina*	adult	unk	92.2	60.5
Area	NR 03	*A. ligamentina*	adult	unk	92.7	64.2
Area	NR 03	*A. ligamentina*	adult	unk	93.8	61.5
Area	NR 03	*A. ligamentina*	adult	unk	97	63.5
Area	NR 03	*A. ligamentina*	adult	unk	97.8	62.7
Area	NR 03	*A. ligamentina*	adult	unk	97.9	61.4
Area	NR 03	*A. ligamentina*	adult	unk	98	64.9
Area	NR 03	*A. ligamentina*	adult	unk	99.5	69.9
Area	NR 03	*A. ligamentina*	adult	unk	99.8	65.2

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 03	*A. ligamentina*	adult	unk	100	70.8
Area	NR 03	*A. ligamentina*	adult	unk	100.1	63.5
Area	NR 03	*A. ligamentina*	adult	unk	100.2	64.3
Area	NR 03	*A. ligamentina*	adult	unk	100.5	62.7
Area	NR 03	*A. ligamentina*	adult	unk	100.8	68.1
Area	NR 03	*A. ligamentina*	adult	unk	101.3	70
Area	NR 03	*A. ligamentina*	adult	unk	101.4	63.4
Area	NR 03	*A. ligamentina*	adult	unk	101.6	64.5
Area	NR 03	*A. ligamentina*	adult	unk	101.7	65
Area	NR 03	*A. ligamentina*	adult	unk	102.3	69.6
Area	NR 03	*A. ligamentina*	adult	unk	102.8	67.9
Area	NR 03	*A. ligamentina*	adult	unk	103	61.6
Area	NR 03	*A. ligamentina*	adult	unk	103	69.1
Area	NR 03	*A. ligamentina*	adult	unk	103.3	62.9
Area	NR 03	*A. ligamentina*	adult	unk	103.4	64.9
Area	NR 03	*A. ligamentina*	adult	unk	103.7	67
Area	NR 03	*A. ligamentina*	adult	unk	104.1	68.6
Area	NR 03	*A. ligamentina*	adult	unk	104.2	62.3
Area	NR 03	*A. ligamentina*	adult	unk	104.4	66.1
Area	NR 03	*A. ligamentina*	adult	unk	104.5	64.6
Area	NR 03	*A. ligamentina*	adult	unk	104.6	67
Area	NR 03	*A. ligamentina*	adult	unk	104.7	66.2
Area	NR 03	*A. ligamentina*	adult	unk	105.4	68.8
Area	NR 03	*A. ligamentina*	adult	unk	105.4	64
Area	NR 03	*A. ligamentina*	adult	unk	105.7	68.5
Area	NR 03	*A. ligamentina*	adult	unk	106.8	63.8
Area	NR 03	*A. ligamentina*	adult	unk	107	70.8
Area	NR 03	*A. ligamentina*	adult	unk	107	71.2
Area	NR 03	*A. ligamentina*	adult	unk	107.1	67.7
Area	NR 03	*A. ligamentina*	adult	unk	107.1	64.1
Area	NR 03	*A. ligamentina*	adult	unk	107.2	68.9
Area	NR 03	*A. ligamentina*	adult	unk	107.3	69.7
Area	NR 03	*A. ligamentina*	adult	unk	107.4	71.5
Area	NR 03	*A. ligamentina*	adult	unk	107.7	65.6
Area	NR 03	*A. ligamentina*	adult	unk	108	65.6
Area	NR 03	*A. ligamentina*	adult	unk	108.1	70.8

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 03	*A. ligamentina*	adult	unk	108.5	72.6
Area	NR 03	*A. ligamentina*	adult	unk	108.7	70.3
Area	NR 03	*A. ligamentina*	adult	unk	108.7	66.9
Area	NR 03	*A. ligamentina*	adult	unk	108.8	–
Area	NR 03	*A. ligamentina*	adult	unk	108.9	71.3
Area	NR 03	*A. ligamentina*	adult	unk	108.9	70.1
Area	NR 03	*A. ligamentina*	adult	unk	108.9	69.2
Area	NR 03	*A. ligamentina*	adult	unk	109	70.9
Area	NR 03	*A. ligamentina*	adult	unk	109.1	65.7
Area	NR 03	*A. ligamentina*	adult	unk	109.1	69.6
Area	NR 03	*A. ligamentina*	adult	unk	109.2	68.9
Area	NR 03	*A. ligamentina*	adult	unk	109.3	66
Area	NR 03	*A. ligamentina*	adult	unk	109.3	72.1
Area	NR 03	*A. ligamentina*	adult	unk	109.4	70.7
Area	NR 03	*A. ligamentina*	adult	unk	109.6	70.6
Area	NR 03	*A. ligamentina*	adult	unk	109.7	72.4
Area	NR 03	*A. ligamentina*	adult	unk	109.8	70.2
Area	NR 03	*A. ligamentina*	adult	unk	110	65.1
Area	NR 03	*A. ligamentina*	adult	unk	110	68.1
Area	NR 03	*A. ligamentina*	adult	unk	110.2	74.6
Area	NR 03	*A. ligamentina*	adult	unk	110.2	71.4
Area	NR 03	*A. ligamentina*	adult	unk	110.6	71.3
Area	NR 03	*A. ligamentina*	adult	unk	110.6	74
Area	NR 03	*A. ligamentina*	adult	unk	110.7	66.5
Area	NR 03	*A. ligamentina*	adult	unk	110.8	70.7
Area	NR 03	*A. ligamentina*	adult	unk	111	70.5
Area	NR 03	*A. ligamentina*	adult	unk	111.2	70.2
Area	NR 03	*A. ligamentina*	adult	unk	111.2	70
Area	NR 03	*A. ligamentina*	adult	unk	111.2	70.2
Area	NR 03	*A. ligamentina*	adult	unk	111.3	71.1
Area	NR 03	*A. ligamentina*	adult	unk	111.4	72.5
Area	NR 03	*A. ligamentina*	adult	unk	111.4	70.6
Area	NR 03	*A. ligamentina*	adult	unk	111.5	66.7
Area	NR 03	*A. ligamentina*	adult	unk	111.5	72.4
Area	NR 03	*A. ligamentina*	adult	unk	111.6	69.2
Area	NR 03	*A. ligamentina*	adult	unk	111.6	74.2

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 03	*A. ligamentina*	adult	unk	111.9	73.7
Area	NR 03	*A. ligamentina*	adult	unk	112	69.3
Area	NR 03	*A. ligamentina*	adult	unk	112	–
Area	NR 03	*A. ligamentina*	adult	unk	112	66.3
Area	NR 03	*A. ligamentina*	adult	unk	112.2	73
Area	NR 03	*A. ligamentina*	adult	unk	112.2	64.4
Area	NR 03	*A. ligamentina*	adult	unk	112.2	72.4
Area	NR 03	*A. ligamentina*	adult	unk	112.2	69.9
Area	NR 03	*A. ligamentina*	adult	unk	112.4	68
Area	NR 03	*A. ligamentina*	adult	unk	112.4	74.8
Area	NR 03	*A. ligamentina*	adult	unk	112.4	70
Area	NR 03	*A. ligamentina*	adult	unk	112.5	66.3
Area	NR 03	*A. ligamentina*	adult	unk	112.6	69.8
Area	NR 03	*A. ligamentina*	adult	unk	112.6	75.3
Area	NR 03	*A. ligamentina*	adult	unk	112.7	71.8
Area	NR 03	*A. ligamentina*	adult	unk	112.7	74.8
Area	NR 03	*A. ligamentina*	adult	unk	113.1	72.8
Area	NR 03	*A. ligamentina*	adult	unk	113.4	76.1
Area	NR 03	*A. ligamentina*	adult	unk	113.4	70.4
Area	NR 03	*A. ligamentina*	adult	unk	113.6	72.7
Area	NR 03	*A. ligamentina*	adult	unk	113.9	74
Area	NR 03	*A. ligamentina*	adult	unk	113.9	75.5
Area	NR 03	*A. ligamentina*	adult	unk	114.3	65
Area	NR 03	*A. ligamentina*	adult	unk	114.4	70.9
Area	NR 03	*A. ligamentina*	adult	unk	114.4	69.3
Area	NR 03	*A. ligamentina*	adult	unk	114.6	73.9
Area	NR 03	*A. ligamentina*	adult	unk	114.6	71.3
Area	NR 03	*A. ligamentina*	adult	unk	114.6	69.5
Area	NR 03	*A. ligamentina*	adult	unk	114.7	68.8
Area	NR 03	*A. ligamentina*	adult	unk	114.8	74.3
Area	NR 03	*A. ligamentina*	adult	unk	115	–
Area	NR 03	*A. ligamentina*	adult	unk	115	73.4
Area	NR 03	*A. ligamentina*	adult	unk	115.1	67.7
Area	NR 03	*A. ligamentina*	adult	unk	115.1	73.1
Area	NR 03	*A. ligamentina*	adult	unk	115.3	72.5
Area	NR 03	*A. ligamentina*	adult	unk	115.4	79.6

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 03	*A. ligamentina*	adult	unk	115.5	73.4
Area	NR 03	*A. ligamentina*	adult	unk	115.5	69.9
Area	NR 03	*A. ligamentina*	adult	unk	115.9	72.4
Area	NR 03	*A. ligamentina*	adult	unk	115.9	69
Area	NR 03	*A. ligamentina*	adult	unk	116	78
Area	NR 03	*A. ligamentina*	adult	unk	116	71.7
Area	NR 03	*A. ligamentina*	adult	unk	116.3	69.6
Area	NR 03	*A. ligamentina*	adult	unk	116.3	68.6
Area	NR 03	*A. ligamentina*	adult	unk	116.3	72.5
Area	NR 03	*A. ligamentina*	adult	unk	116.5	73.6
Area	NR 03	*A. ligamentina*	adult	unk	117.1	69.4
Area	NR 03	*A. ligamentina*	adult	unk	117.1	72.2
Area	NR 03	*A. ligamentina*	adult	unk	117.1	77.2
Area	NR 03	*A. ligamentina*	adult	unk	117.2	77.2
Area	NR 03	*A. ligamentina*	adult	unk	117.3	73.4
Area	NR 03	*A. ligamentina*	adult	unk	117.5	77.5
Area	NR 03	*A. ligamentina*	adult	unk	117.6	75.6
Area	NR 03	*A. ligamentina*	adult	unk	117.6	78
Area	NR 03	*A. ligamentina*	adult	unk	118	72.1
Area	NR 03	*A. ligamentina*	adult	unk	118	71.8
Area	NR 03	*A. ligamentina*	adult	unk	118.2	72.3
Area	NR 03	*A. ligamentina*	adult	unk	118.4	73.3
Area	NR 03	*A. ligamentina*	adult	unk	118.4	72.4
Area	NR 03	*A. ligamentina*	adult	unk	119	80.7
Area	NR 03	*A. ligamentina*	adult	unk	119.2	78.2
Area	NR 03	*A. ligamentina*	adult	unk	119.3	78.4
Area	NR 03	*A. ligamentina*	adult	unk	119.3	74.6
Area	NR 03	*A. ligamentina*	adult	unk	119.5	–
Area	NR 03	*A. ligamentina*	adult	unk	119.7	79
Area	NR 03	*A. ligamentina*	adult	unk	120	77.8
Area	NR 03	*A. ligamentina*	adult	unk	120.3	74.4
Area	NR 03	*A. ligamentina*	adult	unk	120.3	73.4
Area	NR 03	*A. ligamentina*	adult	unk	120.3	78.1
Area	NR 03	*A. ligamentina*	adult	unk	120.4	74.7
Area	NR 03	*A. ligamentina*	adult	unk	120.5	69.8
Area	NR 03	*A. ligamentina*	adult	unk	120.6	77.8

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 03	*A. ligamentina*	adult	unk	120.7	71.1
Area	NR 03	*A. ligamentina*	adult	unk	121.8	75.1
Area	NR 03	*A. ligamentina*	adult	unk	121.8	76.3
Area	NR 03	*A. ligamentina*	adult	unk	121.9	77.8
Area	NR 03	*A. ligamentina*	adult	unk	122	76.4
Area	NR 03	*A. ligamentina*	adult	unk	122.2	74.2
Area	NR 03	*A. ligamentina*	adult	unk	122.3	78.5
Area	NR 03	*A. ligamentina*	adult	unk	122.4	76.4
Area	NR 03	*A. ligamentina*	adult	unk	122.5	75.5
Area	NR 03	*A. ligamentina*	adult	unk	122.5	80.6
Area	NR 03	*A. ligamentina*	adult	unk	122.5	76.2
Area	NR 03	*A. ligamentina*	adult	unk	122.7	82
Area	NR 03	*A. ligamentina*	adult	unk	122.7	72.9
Area	NR 03	*A. ligamentina*	adult	unk	123.5	74.4
Area	NR 03	*A. ligamentina*	adult	unk	124.2	81.4
Area	NR 03	*A. ligamentina*	adult	unk	124.3	75.8
Area	NR 03	*A. ligamentina*	adult	unk	125.9	76.1
Area	NR 03	*C. tuberculata*	adult	unk	79.8	69.5
Area	NR 03	*C. tuberculata*	adult	unk	80.3	67.4
Area	NR 03	*C. tuberculata*	adult	unk	82.1	68.6
Area	NR 03	*C. tuberculata*	adult	unk	82.2	67.5
Area	NR 03	*C. tuberculata*	adult	unk	82.5	69.9
Area	NR 03	*C. tuberculata*	adult	unk	83.7	68.9
Area	NR 03	*C. tuberculata*	adult	unk	86.9	73.4
Area	NR 03	*C. tuberculata*	adult	unk	90.2	76.4
Area	NR 03	*C. tuberculata*	adult	unk	90.6	73.4
Area	NR 03	*C. tuberculata*	adult	unk	91.2	79.2
Area	NR 03	*C. tuberculata*	adult	unk	93.4	79.8
Area	NR 03	*C. tuberculata*	adult	unk	94.5	73.2
Area	NR 03	*C. tuberculata*	adult	unk	96.4	77.2
Area	NR 03	*C. tuberculata*	adult	unk	99	82.9
Area	NR 03	*C. tuberculata*	adult	unk	99.9	77.8
Area	NR 03	*C. tuberculata*	adult	unk	100.7	81.3
Area	NR 03	*E. dilatata*	adult	unk	79	40.5
Area	NR 03	*E. dilatata*	adult	unk	91.5	40
Area	NR 04	*A. ligamentina*	adult	unk	89.7	57

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 04	*A. ligamentina*	adult	unk	90.9	59.2
Area	NR 04	*A. ligamentina*	adult	unk	94.2	62.7
Area	NR 04	*A. ligamentina*	adult	unk	95.3	61.6
Area	NR 04	*A. ligamentina*	adult	unk	96.9	60.4
Area	NR 04	*A. ligamentina*	adult	unk	97.1	65.4
Area	NR 04	*A. ligamentina*	adult	unk	100.8	62.1
Area	NR 04	*A. ligamentina*	adult	unk	102.4	63.9
Area	NR 04	*A. ligamentina*	adult	unk	102.4	63.9
Area	NR 04	*A. ligamentina*	adult	unk	102.4	65.5
Area	NR 04	*A. ligamentina*	adult	unk	102.9	65.8
Area	NR 04	*A. ligamentina*	adult	unk	105.4	72.3
Area	NR 04	*A. ligamentina*	adult	unk	105.7	67.8
Area	NR 04	*A. ligamentina*	adult	unk	106.3	66.6
Area	NR 04	*A. ligamentina*	adult	unk	107.3	70.4
Area	NR 04	*A. ligamentina*	adult	unk	108.2	73.2
Area	NR 04	*A. ligamentina*	adult	unk	109	79.3
Area	NR 04	*A. ligamentina*	adult	unk	109.4	69.1
Area	NR 04	*A. ligamentina*	adult	unk	111.6	74.1
Area	NR 04	*A. ligamentina*	adult	unk	111.6	76
Area	NR 04	*A. ligamentina*	adult	unk	112.3	70.3
Area	NR 04	*A. ligamentina*	adult	unk	112.6	75.5
Area	NR 04	*A. ligamentina*	adult	unk	115.4	72.4
Area	NR 04	*A. ligamentina*	adult	unk	115.5	74.9
Area	NR 04	*A. ligamentina*	adult	unk	117	75.4
Area	NR 04	*A. ligamentina*	adult	unk	122.3	78.4
Area	NR 04	*A. ligamentina*	adult	unk	122.4	79.3
Area	NR 04	*C. tuberculata*	adult	unk	74.6	66.2
Area	NR 04	*C. tuberculata*	adult	unk	74.9	65.9
Area	NR 04	*C. tuberculata*	adult	unk	78.7	63.1
Area	NR 04	*C. tuberculata*	adult	unk	82	70.7
Area	NR 04	*C. tuberculata*	adult	unk	82.8	75.1
Area	NR 04	*C. tuberculata*	adult	unk	90.6	77.4
Area	NR 04	*C. tuberculata*	adult	unk	93.9	78.5
Area	NR 04	*C. tuberculata*	adult	unk	99.5	78.3
Area	NR 05	*A. ligamentina*	juv	unk	63.1	43.3
Area	NR 05	*A. ligamentina*	adult	unk	70.9	51.8

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 05	*A. ligamentina*	adult	unk	71.9	47
Area	NR 05	*A. ligamentina*	adult	unk	72.5	50.8
Area	NR 05	*A. ligamentina*	adult	unk	72.5	47.2
Area	NR 05	*A. ligamentina*	adult	unk	74.5	50.6
Area	NR 05	*A. ligamentina*	adult	unk	75.8	46.7
Area	NR 05	*A. ligamentina*	adult	unk	75.9	51.3
Area	NR 05	*A. ligamentina*	adult	unk	76.4	47.7
Area	NR 05	*A. ligamentina*	adult	unk	76.5	51.5
Area	NR 05	*A. ligamentina*	adult	unk	77.7	49.4
Area	NR 05	*A. ligamentina*	adult	unk	77.8	55.1
Area	NR 05	*A. ligamentina*	adult	unk	78	50.5
Area	NR 05	*A. ligamentina*	adult	unk	78.3	50.1
Area	NR 05	*A. ligamentina*	adult	unk	78.8	53.1
Area	NR 05	*A. ligamentina*	adult	unk	78.9	51.6
Area	NR 05	*A. ligamentina*	adult	unk	79	52.8
Area	NR 05	*A. ligamentina*	adult	unk	79	82.8
Area	NR 05	*A. ligamentina*	adult	unk	79	55.7
Area	NR 05	*A. ligamentina*	adult	unk	79.1	50.3
Area	NR 05	*A. ligamentina*	adult	unk	79.1	53.2
Area	NR 05	*A. ligamentina*	adult	unk	79.3	71
Area	NR 05	*A. ligamentina*	adult	unk	79.7	53.8
Area	NR 05	*A. ligamentina*	adult	unk	79.7	54.3
Area	NR 05	*A. ligamentina*	adult	unk	79.8	46.2
Area	NR 05	*A. ligamentina*	adult	unk	79.9	52.7
Area	NR 05	*A. ligamentina*	adult	unk	79.9	48.8
Area	NR 05	*A. ligamentina*	adult	unk	80.1	56.2
Area	NR 05	*A. ligamentina*	adult	unk	80.1	49.2
Area	NR 05	*A. ligamentina*	adult	unk	80.3	50.8
Area	NR 05	*A. ligamentina*	adult	unk	80.5	52.8
Area	NR 05	*A. ligamentina*	adult	unk	81.2	5.4
Area	NR 05	*A. ligamentina*	adult	unk	81.2	55
Area	NR 05	*A. ligamentina*	adult	unk	81.7	49.1
Area	NR 05	*A. ligamentina*	adult	unk	81.8	55.2
Area	NR 05	*A. ligamentina*	adult	unk	81.9	49.6
Area	NR 05	*A. ligamentina*	adult	unk	82.5	58.9
Area	NR 05	*A. ligamentina*	adult	unk	83	54.6

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 05	*A. ligamentina*	adult	unk	83.2	58.1
Area	NR 05	*A. ligamentina*	adult	unk	83.2	54.9
Area	NR 05	*A. ligamentina*	adult	unk	83.5	53.8
Area	NR 05	*A. ligamentina*	adult	unk	83.6	57.4
Area	NR 05	*A. ligamentina*	adult	unk	83.7	54.8
Area	NR 05	*A. ligamentina*	adult	unk	84	52.4
Area	NR 05	*A. ligamentina*	adult	unk	84.1	54.3
Area	NR 05	*A. ligamentina*	adult	unk	84.3	57.6
Area	NR 05	*A. ligamentina*	adult	unk	84.5	59
Area	NR 05	*A. ligamentina*	adult	unk	84.5	58.8
Area	NR 05	*A. ligamentina*	adult	unk	84.7	55.3
Area	NR 05	*A. ligamentina*	adult	unk	84.7	56.5
Area	NR 05	*A. ligamentina*	adult	unk	84.8	60.5
Area	NR 05	*A. ligamentina*	adult	unk	85.1	57.3
Area	NR 05	*A. ligamentina*	adult	unk	85.3	56
Area	NR 05	*A. ligamentina*	adult	unk	86.2	54.7
Area	NR 05	*A. ligamentina*	adult	unk	86.6	55
Area	NR 05	*A. ligamentina*	adult	unk	86.7	59.4
Area	NR 05	*A. ligamentina*	adult	unk	86.7	57.5
Area	NR 05	*A. ligamentina*	adult	unk	87	60.7
Area	NR 05	*A. ligamentina*	adult	unk	87.2	59
Area	NR 05	*A. ligamentina*	adult	unk	87.3	57.3
Area	NR 05	*A. ligamentina*	adult	unk	87.3	58.7
Area	NR 05	*A. ligamentina*	adult	unk	87.5	58.1
Area	NR 05	*A. ligamentina*	adult	unk	87.5	53.1
Area	NR 05	*A. ligamentina*	adult	unk	87.6	60.1
Area	NR 05	*A. ligamentina*	adult	unk	87.6	58.9
Area	NR 05	*A. ligamentina*	adult	unk	87.8	56.5
Area	NR 05	*A. ligamentina*	adult	unk	87.9	54.5
Area	NR 05	*A. ligamentina*	adult	unk	88.2	53
Area	NR 05	*A. ligamentina*	adult	unk	88.3	60.1
Area	NR 05	*A. ligamentina*	adult	unk	88.5	58.4
Area	NR 05	*A. ligamentina*	adult	unk	88.6	60.7
Area	NR 05	*A. ligamentina*	adult	unk	88.9	56.6
Area	NR 05	*A. ligamentina*	adult	unk	88.9	50.2
Area	NR 05	*A. ligamentina*	adult	unk	89	55.6

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 05	*A. ligamentina*	adult	unk	89.2	52.6
Area	NR 05	*A. ligamentina*	adult	unk	89.4	59.3
Area	NR 05	*A. ligamentina*	adult	unk	89.4	57.3
Area	NR 05	*A. ligamentina*	adult	unk	89.8	59.5
Area	NR 05	*A. ligamentina*	adult	unk	89.9	58.1
Area	NR 05	*A. ligamentina*	adult	unk	89.9	60.2
Area	NR 05	*A. ligamentina*	adult	unk	90.1	56.3
Area	NR 05	*A. ligamentina*	adult	unk	90.4	61.9
Area	NR 05	*A. ligamentina*	adult	unk	90.6	62.2
Area	NR 05	*A. ligamentina*	adult	unk	90.7	57.7
Area	NR 05	*A. ligamentina*	adult	unk	90.8	60
Area	NR 05	*A. ligamentina*	adult	unk	90.9	61.6
Area	NR 05	*A. ligamentina*	adult	unk	91.1	56.6
Area	NR 05	*A. ligamentina*	adult	unk	91.6	60.5
Area	NR 05	*A. ligamentina*	adult	unk	91.6	64.5
Area	NR 05	*A. ligamentina*	adult	unk	91.9	64.2
Area	NR 05	*A. ligamentina*	adult	unk	91.9	60.7
Area	NR 05	*A. ligamentina*	adult	unk	91.9	59.7
Area	NR 05	*A. ligamentina*	adult	unk	92	55.7
Area	NR 05	*A. ligamentina*	adult	unk	92	63.7
Area	NR 05	*A. ligamentina*	adult	unk	92.3	60.6
Area	NR 05	*A. ligamentina*	adult	unk	92.5	60
Area	NR 05	*A. ligamentina*	adult	unk	92.6	64.5
Area	NR 05	*A. ligamentina*	adult	unk	93.4	62
Area	NR 05	*A. ligamentina*	adult	unk	93.6	58.9
Area	NR 05	*A. ligamentina*	adult	unk	93.7	62.4
Area	NR 05	*A. ligamentina*	adult	unk	93.8	59.7
Area	NR 05	*A. ligamentina*	adult	unk	94.4	62.1
Area	NR 05	*A. ligamentina*	adult	unk	94.6	62.8
Area	NR 05	*A. ligamentina*	adult	unk	94.7	62.9
Area	NR 05	*A. ligamentina*	adult	unk	94.9	60.7
Area	NR 05	*A. ligamentina*	adult	unk	95	59.7
Area	NR 05	*A. ligamentina*	adult	unk	95.4	70.9
Area	NR 05	*A. ligamentina*	adult	unk	95.7	64.2
Area	NR 05	*A. ligamentina*	adult	unk	95.8	64.6
Area	NR 05	*A. ligamentina*	adult	unk	96	63.1

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 05	*A. ligamentina*	adult	unk	96.1	65.3
Area	NR 05	*A. ligamentina*	adult	unk	96.1	63.7
Area	NR 05	*A. ligamentina*	adult	unk	96.1	65.6
Area	NR 05	*A. ligamentina*	adult	unk	96.4	59.5
Area	NR 05	*A. ligamentina*	adult	unk	96.5	58.7
Area	NR 05	*A. ligamentina*	adult	unk	96.7	60.7
Area	NR 05	*A. ligamentina*	adult	unk	97.1	65
Area	NR 05	*A. ligamentina*	adult	unk	97.6	62.9
Area	NR 05	*A. ligamentina*	adult	unk	97.7	64.3
Area	NR 05	*A. ligamentina*	adult	unk	97.8	59.9
Area	NR 05	*A. ligamentina*	adult	unk	98.7	67.4
Area	NR 05	*A. ligamentina*	adult	unk	98.8	62.3
Area	NR 05	*A. ligamentina*	adult	unk	99.2	61.2
Area	NR 05	*A. ligamentina*	adult	unk	99.6	68.3
Area	NR 05	*A. ligamentina*	adult	unk	99.7	68.3
Area	NR 05	*A. ligamentina*	adult	unk	99.7	65.9
Area	NR 05	*A. ligamentina*	adult	unk	99.9	63.9
Area	NR 05	*A. ligamentina*	adult	unk	100.1	68.6
Area	NR 05	*A. ligamentina*	adult	unk	100.2	64.5
Area	NR 05	*A. ligamentina*	adult	unk	100.3	69.7
Area	NR 05	*A. ligamentina*	adult	unk	100.6	72.3
Area	NR 05	*A. ligamentina*	adult	unk	101.2	66.8
Area	NR 05	*A. ligamentina*	adult	unk	101.4	69.3
Area	NR 05	*A. ligamentina*	adult	unk	101.8	65.7
Area	NR 05	*A. ligamentina*	adult	unk	102.5	69.3
Area	NR 05	*A. ligamentina*	adult	unk	103.1	70.5
Area	NR 05	*A. ligamentina*	adult	unk	103.7	65.8
Area	NR 05	*A. ligamentina*	adult	unk	104.1	67
Area	NR 05	*A. ligamentina*	adult	unk	105	66.2
Area	NR 05	*A. ligamentina*	adult	unk	105.4	96.2
Area	NR 05	*A. ligamentina*	adult	unk	106.3	70.5
Area	NR 05	*A. ligamentina*	adult	unk	107.5	72
Area	NR 05	*A. ligamentina*	adult	unk	108.3	72.9
Area	NR 05	*A. ligamentina*	adult	unk	109.6	75.5
Area	NR 05	*A. ligamentina*	adult	unk	110.3	70.6
Area	NR 05	*A. ligamentina*	adult	unk	111.6	76.4

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 05	*A. ligamentina*	adult	unk	111.8	70.1
Area	NR 05	*A. ligamentina*	adult	unk	113	76.7
Area	NR 05	*A. ligamentina*	adult	unk	117	75.2
Area	NR 05	*A. ligamentina*	adult	unk	121.5	83.1
Area	NR 05	*A. ligamentina*	adult	unk	123.2	78.8
Area	NR 05	*A. ligamentina*	adult	unk	–	56.5
Area	NR 05	*C. tuberculata*	adult	unk	59.1	50.4
Area	NR 05	*C. tuberculata*	adult	unk	69.1	61.3
Area	NR 05	*C. tuberculata*	adult	unk	81.9	70.3
Area	NR 05	*C. tuberculata*	adult	unk	93.2	72.6
Area	NR 06	*A. ligamentina*	adult	unk	81	–
Area	NR 06	*A. ligamentina*	adult	unk	90	–
Area	NR 06	*A. ligamentina*	adult	unk	94	–
Area	NR 06	*A. ligamentina*	adult	unk	108	–
Area	NR 07	*A. ligamentina*	adult	unk	68	–
Area	NR 07	*A. ligamentina*	adult	unk	68	–
Area	NR 07	*A. ligamentina*	adult	unk	75	–
Area	NR 07	*A. ligamentina*	adult	unk	76	–
Area	NR 07	*A. ligamentina*	adult	unk	80	–
Area	NR 07	*A. ligamentina*	adult	unk	80	–
Area	NR 07	*A. ligamentina*	adult	unk	82	–
Area	NR 07	*A. ligamentina*	adult	unk	85	–
Area	NR 07	*A. ligamentina*	adult	unk	86	–
Area	NR 07	*A. ligamentina*	adult	unk	86	–
Area	NR 07	*A. ligamentina*	adult	unk	87	–
Area	NR 07	*A. ligamentina*	adult	unk	89	–
Area	NR 07	*A. ligamentina*	adult	unk	90	–
Area	NR 07	*A. ligamentina*	adult	unk	92	–
Area	NR 07	*A. ligamentina*	adult	unk	93	–
Area	NR 07	*A. ligamentina*	adult	unk	95	–
Area	NR 07	*A. ligamentina*	adult	unk	97	–
Area	NR 07	*A. ligamentina*	adult	unk	99	–
Area	NR 07	*A. ligamentina*	adult	unk	107	–
Area	NR 07	*A. ligamentina*	adult	unk	109	–
Area	NR 07	*A. ligamentina*	adult	unk	110	–
Area	NR 07	*A. ligamentina*	adult	unk	110	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 07	*A. ligamentina*	adult	unk	111	–
Area	NR 07	*A. ligamentina*	adult	unk	111	–
Area	NR 07	*A. ligamentina*	adult	unk	111	–
Area	NR 07	*A. ligamentina*	adult	unk	115	–
Area	NR 07	*A. ligamentina*	adult	unk	116	–
Area	NR 07	*C. tuberculata*	adult	unk	85	–
Area	NR 08	*A. ligamentina*	adult	unk	74.6	51.4
Area	NR 08	*A. ligamentina*	adult	unk	74.6	51.4
Area	NR 08	*A. ligamentina*	adult	unk	80.1	56.6
Area	NR 08	*A. ligamentina*	adult	unk	80.1	56.6
Area	NR 08	*A. ligamentina*	adult	unk	81.5	54.3
Area	NR 08	*A. ligamentina*	adult	unk	81.5	54.3
Area	NR 08	*A. ligamentina*	adult	unk	83.6	55.5
Area	NR 08	*A. ligamentina*	adult	unk	83.6	55.5
Area	NR 08	*A. ligamentina*	adult	unk	83.7	55.3
Area	NR 08	*A. ligamentina*	adult	unk	83.7	55.3
Area	NR 08	*A. ligamentina*	adult	unk	88	56.2
Area	NR 08	*A. ligamentina*	adult	unk	88	56.2
Area	NR 08	*A. ligamentina*	adult	unk	88.5	60
Area	NR 08	*A. ligamentina*	adult	unk	88.5	60
Area	NR 08	*A. ligamentina*	adult	unk	92.5	62.2
Area	NR 08	*A. ligamentina*	adult	unk	92.5	62.2
Area	NR 08	*A. ligamentina*	adult	unk	92.9	60.1
Area	NR 08	*A. ligamentina*	adult	unk	92.9	60.1
Area	NR 08	*A. ligamentina*	adult	unk	93.5	63.6
Area	NR 08	*A. ligamentina*	adult	unk	94.5	65.2
Area	NR 08	*A. ligamentina*	adult	unk	94.5	65.2
Area	NR 08	*A. ligamentina*	adult	unk	96.9	61.4
Area	NR 08	*A. ligamentina*	adult	unk	96.9	61.4
Area	NR 08	*A. ligamentina*	adult	unk	98.8	71.8
Area	NR 08	*A. ligamentina*	adult	unk	98.8	71.8
Area	NR 08	*A. ligamentina*	adult	unk	101.6	67.5
Area	NR 08	*A. ligamentina*	adult	unk	101.6	67.5
Area	NR 08	*A. ligamentina*	adult	unk	102	66.9
Area	NR 08	*A. ligamentina*	adult	unk	102	66.9
Area	NR 08	*A. ligamentina*	adult	unk	102.3	67.6

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 08	*A. ligamentina*	adult	unk	102.3	67.6
Area	NR 08	*A. ligamentina*	adult	unk	103	62.1
Area	NR 08	*A. ligamentina*	adult	unk	103	62.1
Area	NR 08	*A. ligamentina*	adult	unk	103.9	62.2
Area	NR 08	*A. ligamentina*	adult	unk	103.9	62.2
Area	NR 08	*A. ligamentina*	adult	unk	104.1	69.7
Area	NR 08	*A. ligamentina*	adult	unk	104.1	69.7
Area	NR 08	*A. ligamentina*	adult	unk	104.3	61.5
Area	NR 08	*A. ligamentina*	adult	unk	104.3	61.5
Area	NR 08	*A. ligamentina*	adult	unk	104.6	66.7
Area	NR 08	*A. ligamentina*	adult	unk	104.6	66.7
Area	NR 08	*A. ligamentina*	adult	unk	104.8	71
Area	NR 08	*A. ligamentina*	adult	unk	104.8	71
Area	NR 08	*A. ligamentina*	adult	unk	105	65.1
Area	NR 08	*A. ligamentina*	adult	unk	105	65.1
Area	NR 08	*A. ligamentina*	adult	unk	105.1	69.2
Area	NR 08	*A. ligamentina*	adult	unk	105.1	69.2
Area	NR 08	*A. ligamentina*	adult	unk	106	67.6
Area	NR 08	*A. ligamentina*	adult	unk	106	67.6
Area	NR 08	*A. ligamentina*	adult	unk	106.2	69
Area	NR 08	*A. ligamentina*	adult	unk	106.2	69
Area	NR 08	*A. ligamentina*	adult	unk	106.8	75.3
Area	NR 08	*A. ligamentina*	adult	unk	106.8	75.3
Area	NR 08	*A. ligamentina*	adult	unk	107.4	67.9
Area	NR 08	*A. ligamentina*	adult	unk	107.4	67.9
Area	NR 08	*A. ligamentina*	adult	unk	107.5	71.1
Area	NR 08	*A. ligamentina*	adult	unk	107.5	71.1
Area	NR 08	*A. ligamentina*	adult	unk	107.8	65.5
Area	NR 08	*A. ligamentina*	adult	unk	107.8	65.5
Area	NR 08	*A. ligamentina*	adult	unk	107.9	70.2
Area	NR 08	*A. ligamentina*	adult	unk	107.9	70.2
Area	NR 08	*A. ligamentina*	adult	unk	108.6	68.3
Area	NR 08	*A. ligamentina*	adult	unk	108.6	68.3
Area	NR 08	*A. ligamentina*	adult	unk	109	68.1
Area	NR 08	*A. ligamentina*	adult	unk	109	68.1
Area	NR 08	*A. ligamentina*	adult	unk	109.9	73.5

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 08	*A. ligamentina*	adult	unk	109.9	73.5
Area	NR 08	*A. ligamentina*	adult	unk	110.1	72.3
Area	NR 08	*A. ligamentina*	adult	unk	110.1	72.3
Area	NR 08	*A. ligamentina*	adult	unk	110.5	72.6
Area	NR 08	*A. ligamentina*	adult	unk	110.5	72.6
Area	NR 08	*A. ligamentina*	adult	unk	110.9	73.7
Area	NR 08	*A. ligamentina*	adult	unk	110.9	72.3
Area	NR 08	*A. ligamentina*	adult	unk	110.9	73.7
Area	NR 08	*A. ligamentina*	adult	unk	110.9	72.3
Area	NR 08	*A. ligamentina*	adult	unk	111.6	70.5
Area	NR 08	*A. ligamentina*	adult	unk	111.6	70.5
Area	NR 08	*A. ligamentina*	adult	unk	112.1	70.9
Area	NR 08	*A. ligamentina*	adult	unk	112.1	70.9
Area	NR 08	*A. ligamentina*	adult	unk	112.3	71.1
Area	NR 08	*A. ligamentina*	adult	unk	112.3	71.1
Area	NR 08	*A. ligamentina*	adult	unk	114.7	72.8
Area	NR 08	*A. ligamentina*	adult	unk	114.7	72.2
Area	NR 08	*A. ligamentina*	adult	unk	114.7	72.8
Area	NR 08	*A. ligamentina*	adult	unk	114.7	72.2
Area	NR 08	*A. ligamentina*	adult	unk	115.2	72.4
Area	NR 08	*A. ligamentina*	adult	unk	115.2	72.4
Area	NR 08	*A. ligamentina*	adult	unk	117.1	78.4
Area	NR 08	*A. ligamentina*	adult	unk	117.1	78.4
Area	NR 08	*A. ligamentina*	adult	unk	125.4	81.6
Area	NR 08	*A. ligamentina*	adult	unk	126.8	82.9
Area	NR 08	*A. ligamentina*	adult	unk	126.8	82.9
Area	NR 08	*A. ligamentina*	adult	unk	127.3	83
Area	NR 08	*A. ligamentina*	adult	unk	127.3	79.3
Area	NR 08	*A. ligamentina*	adult	unk	127.3	83
Area	NR 08	*A. ligamentina*	adult	unk	127.3	79.3
Area	NR 08	*C. tuberculata*	adult	unk	70.1	59.5
Area	NR 08	*C. tuberculata*	adult	unk	70.1	59.5
Area	NR 08	*C. tuberculata*	adult	unk	89.7	79
Area	NR 08	*C. tuberculata*	adult	unk	89.7	79
Area	NR 08	*C. tuberculata*	adult	unk	90.1	79.4
Area	NR 08	*C. tuberculata*	adult	unk	90.1	79.4

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 08	*C. tuberculata*	adult	unk	93.4	77.2
Area	NR 08	*C. tuberculata*	adult	unk	93.4	77.2
Area	NR 10	*A. ligamentina*	adult	unk	71.4	44.8
Area	NR 10	*A. ligamentina*	adult	unk	78.3	49.7
Area	NR 10	*A. ligamentina*	adult	unk	79.7	51.1
Area	NR 10	*A. ligamentina*	adult	unk	79.8	46.4
Area	NR 10	*A. ligamentina*	adult	unk	83.3	52.8
Area	NR 10	*A. ligamentina*	adult	unk	83.4	51.9
Area	NR 10	*A. ligamentina*	adult	unk	83.4	52
Area	NR 10	*A. ligamentina*	adult	unk	83.5	53.4
Area	NR 10	*A. ligamentina*	adult	unk	84.4	52.7
Area	NR 10	*A. ligamentina*	adult	unk	85.6	55.9
Area	NR 10	*A. ligamentina*	adult	unk	86	55.1
Area	NR 10	*A. ligamentina*	adult	unk	86	55.3
Area	NR 10	*A. ligamentina*	adult	unk	86.3	59.5
Area	NR 10	*A. ligamentina*	adult	unk	86.7	55.1
Area	NR 10	*A. ligamentina*	adult	unk	89.2	56.8
Area	NR 10	*A. ligamentina*	adult	unk	90	58.8
Area	NR 10	*A. ligamentina*	adult	unk	90.3	56.1
Area	NR 10	*A. ligamentina*	adult	unk	90.5	55.5
Area	NR 10	*A. ligamentina*	adult	unk	91.1	57.1
Area	NR 10	*A. ligamentina*	adult	unk	93.6	55.2
Area	NR 10	*A. ligamentina*	adult	unk	93.9	58
Area	NR 10	*A. ligamentina*	adult	unk	93.9	54
Area	NR 10	*A. ligamentina*	adult	unk	95	61.3
Area	NR 10	*A. ligamentina*	adult	unk	95.4	57.9
Area	NR 10	*A. ligamentina*	adult	unk	95.9	60.5
Area	NR 10	*A. ligamentina*	adult	unk	95.9	55.3
Area	NR 10	*A. ligamentina*	adult	unk	96.1	58.3
Area	NR 10	*A. ligamentina*	adult	unk	96.1	57
Area	NR 10	*A. ligamentina*	adult	unk	97	68.7
Area	NR 10	*A. ligamentina*	adult	unk	97.6	59.9
Area	NR 10	*A. ligamentina*	adult	unk	99.3	59.2
Area	NR 10	*A. ligamentina*	adult	unk	100	62.2
Area	NR 10	*A. ligamentina*	adult	unk	102	62
Area	NR 10	*A. ligamentina*	adult	unk	102.1	64.1

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 10	*A. ligamentina*	adult	unk	102.2	63.1
Area	NR 10	*A. ligamentina*	adult	unk	102.5	62.8
Area	NR 10	*A. ligamentina*	adult	unk	102.9	60.8
Area	NR 10	*A. ligamentina*	adult	unk	103.3	67.5
Area	NR 10	*A. ligamentina*	adult	unk	103.3	57.4
Area	NR 10	*A. ligamentina*	adult	unk	103.5	64.1
Area	NR 10	*A. ligamentina*	adult	unk	103.5	65.4
Area	NR 10	*A. ligamentina*	adult	unk	103.5	66.3
Area	NR 10	*A. ligamentina*	adult	unk	103.7	65
Area	NR 10	*A. ligamentina*	adult	unk	104.6	67.7
Area	NR 10	*A. ligamentina*	adult	unk	106.3	63.2
Area	NR 10	*A. ligamentina*	adult	unk	106.5	63.2
Area	NR 10	*A. ligamentina*	adult	unk	106.7	69.3
Area	NR 10	*A. ligamentina*	adult	unk	107.4	63.2
Area	NR 10	*A. ligamentina*	adult	unk	107.6	92.2
Area	NR 10	*A. ligamentina*	adult	unk	107.9	65
Area	NR 10	*A. ligamentina*	adult	unk	108.1	69.5
Area	NR 10	*A. ligamentina*	adult	unk	108.9	65.6
Area	NR 10	*A. ligamentina*	adult	unk	109.9	72.4
Area	NR 10	*A. ligamentina*	adult	unk	110.9	64.6
Area	NR 10	*A. ligamentina*	adult	unk	111.5	69.5
Area	NR 10	*A. ligamentina*	adult	unk	112.2	68
Area	NR 10	*A. ligamentina*	adult	unk	112.4	65.2
Area	NR 10	*A. ligamentina*	adult	unk	112.4	70.3
Area	NR 10	*A. ligamentina*	adult	unk	112.6	67.5
Area	NR 10	*A. ligamentina*	adult	unk	113.1	73.3
Area	NR 10	*A. ligamentina*	adult	unk	113.1	68.8
Area	NR 10	*A. ligamentina*	adult	unk	114	71
Area	NR 10	*A. ligamentina*	adult	unk	114.5	69.1
Area	NR 10	*A. ligamentina*	adult	unk	115.7	69.4
Area	NR 10	*A. ligamentina*	adult	unk	118	65.5
Area	NR 10	*A. ligamentina*	adult	unk	128.1	75
Area	NR 10	*C. tuberculata*	adult	unk	77.9	68.1
Area	NR 10	*C. tuberculata*	adult	unk	81.4	68.4
Area	NR 10	*C. tuberculata*	adult	unk	88.9	71.9
Area	NR 10	*C. tuberculata*	adult	unk	95.1	80

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 11	*A. ligamentina*	adult	unk	79.7	56.1
Area	NR 11	*A. ligamentina*	adult	unk	101	69.1
Area	NR 12	*A. ligamentina*	adult	unk	79.4	53
Area	NR 12	*A. ligamentina*	adult	unk	80.1	53.8
Area	NR 12	*A. ligamentina*	adult	unk	83.7	56.1
Area	NR 12	*A. ligamentina*	adult	unk	85.9	56.2
Area	NR 12	*A. ligamentina*	adult	unk	88	54.6
Area	NR 12	*A. ligamentina*	adult	unk	88.2	60.2
Area	NR 12	*A. ligamentina*	adult	unk	88.9	65.1
Area	NR 12	*A. ligamentina*	adult	unk	95.3	60.9
Area	NR 12	*A. ligamentina*	adult	unk	98.3	62.9
Area	NR 12	*A. ligamentina*	adult	unk	99.8	65.7
Area	NR 12	*A. ligamentina*	adult	unk	100.5	64.2
Area	NR 12	*A. ligamentina*	adult	unk	100.8	69.6
Area	NR 12	*A. ligamentina*	adult	unk	106.9	70.1
Area	NR 12	*A. ligamentina*	adult	unk	107.1	68.4
Area	NR 12	*A. ligamentina*	adult	unk	107.2	71.3
Area	NR 12	*A. ligamentina*	adult	unk	108.4	68.6
Area	NR 12	*A. ligamentina*	adult	unk	109	73.2
Area	NR 12	*A. ligamentina*	adult	unk	109.3	72.7
Area	NR 12	*A. ligamentina*	adult	unk	110	75.4
Area	NR 12	*A. ligamentina*	adult	unk	110.5	75.9
Area	NR 12	*A. ligamentina*	adult	unk	111.5	75.4
Area	NR 12	*A. ligamentina*	adult	unk	112.6	73.9
Area	NR 12	*A. ligamentina*	adult	unk	113.1	74.1
Area	NR 12	*A. ligamentina*	adult	unk	114	76.1
Area	NR 12	*A. ligamentina*	adult	unk	115	77.6
Area	NR 12	*A. ligamentina*	adult	unk	116.7	70.7
Area	NR 12	*A. ligamentina*	adult	unk	118.4	72.4
Area	NR 12	*A. ligamentina*	adult	unk	120.9	75.3
Area	NR 12	*A. ligamentina*	adult	unk	126.9	80.6
Area	NR 12	*A. ligamentina*	adult	unk	127.9	75.7
Area	NR 12	*A. ligamentina*	adult	unk	129	82.1
Area	NR 12	*A. ligamentina*	adult	unk	133.2	81.9
Area	NR 12	*A. ligamentina*	adult	unk	–	78.4
Area	NR 12	*C. tuberculata*	adult	unk	63.9	50.9

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 12	*C. tuberculata*	adult	unk	66.8	59.8
Area	NR 12	*C. tuberculata*	adult	unk	74.6	88.4
Area	NR 12	*C. tuberculata*	adult	unk	81.6	67.5
Area	NR 12	*C. tuberculata*	adult	unk	98.2	84.7
Area	NR 14	*A. ligamentina*	adult	unk	78.8	49.2
Area	NR 14	*A. ligamentina*	adult	unk	84	51.6
Area	NR 14	*A. ligamentina*	adult	unk	91.7	59
Area	NR 14	*A. ligamentina*	adult	unk	99.3	65.1
Area	NR 14	*A. ligamentina*	adult	unk	107.3	69.5
Area	NR 14	*A. ligamentina*	adult	unk	107.5	71.5
Area	NR 14	*A. ligamentina*	adult	unk	107.7	67.8
Area	NR 14	*A. ligamentina*	adult	unk	109.8	71.6
Area	NR 14	*A. ligamentina*	adult	unk	112.8	66.4
Area	NR 14	*A. ligamentina*	adult	unk	112.9	68.4
Area	NR 14	*A. ligamentina*	adult	unk	113.4	71.6
Area	NR 14	*A. ligamentina*	adult	unk	118.6	77
Area	NR 14	*A. ligamentina*	adult	unk	120	74
Area	NR 14	*A. ligamentina*	adult	unk	120.8	74
Area	NR 14	*A. ligamentina*	adult	unk	121.6	66.6
Area	NR 14	*A. ligamentina*	adult	unk	122.7	71.6
Area	NR 14	*A. ligamentina*	adult	unk	124.4	75.6
Area	NR 14	*A. ligamentina*	adult	unk	127.7	78.5
Area	NR 14	*A. ligamentina*	adult	unk	128.8	78.5
Area	NR 14	*A. ligamentina*	adult	unk	130.9	80.2
Area	NR 14	*C. tuberculata*	adult	unk	64.6	53.5
Area	NR 14	*C. tuberculata*	adult	unk	67.5	53.5
Area	NR 14	*C. tuberculata*	adult	unk	71	61.3
Area	NR 14	*C. tuberculata*	adult	unk	80.8	69.6
Area	NR 14	*T. verrucosa*	adult	unk	75.9	38.7
Area	NR 14	*T. verrucosa*	adult	unk	77.7	37.3
Area	NR 15	*A. ligamentina*	juv	unk	45.2	29
Area	NR 17	*A. ligamentina*	adult	unk	67	40.5
Area	NR 17	*A. ligamentina*	adult	unk	81.3	53.1
Area	NR 17	*A. ligamentina*	adult	unk	81.8	52.4
Area	NR 17	*A. ligamentina*	adult	unk	82.2	52.7
Area	NR 17	*A. ligamentina*	adult	unk	83.7	58.1

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 17	*A. ligamentina*	adult	unk	84.3	55.2
Area	NR 17	*A. ligamentina*	adult	unk	84.5	54.9
Area	NR 17	*A. ligamentina*	adult	unk	84.8	58.3
Area	NR 17	*A. ligamentina*	adult	unk	87.7	58.8
Area	NR 17	*A. ligamentina*	adult	unk	88.2	57.6
Area	NR 17	*A. ligamentina*	adult	unk	88.5	53
Area	NR 17	*A. ligamentina*	adult	unk	89.3	56.5
Area	NR 17	*A. ligamentina*	adult	unk	89.6	58.4
Area	NR 17	*A. ligamentina*	adult	unk	89.6	55.7
Area	NR 17	*A. ligamentina*	adult	unk	91	58
Area	NR 17	*A. ligamentina*	adult	unk	92	57.2
Area	NR 17	*A. ligamentina*	adult	unk	93.8	59.4
Area	NR 17	*A. ligamentina*	adult	unk	94.6	62.7
Area	NR 17	*A. ligamentina*	adult	unk	94.7	60.7
Area	NR 17	*A. ligamentina*	adult	unk	95.6	62.4
Area	NR 17	*A. ligamentina*	adult	unk	95.8	62.5
Area	NR 17	*A. ligamentina*	adult	unk	96	58.1
Area	NR 17	*A. ligamentina*	adult	unk	96.2	61.3
Area	NR 17	*A. ligamentina*	adult	unk	96.4	62.1
Area	NR 17	*A. ligamentina*	adult	unk	96.4	60.5
Area	NR 17	*A. ligamentina*	adult	unk	96.6	65.7
Area	NR 17	*A. ligamentina*	adult	unk	96.7	64.3
Area	NR 17	*A. ligamentina*	adult	unk	96.9	64.6
Area	NR 17	*A. ligamentina*	adult	unk	97.2	66.9
Area	NR 17	*A. ligamentina*	adult	unk	97.4	63.4
Area	NR 17	*A. ligamentina*	adult	unk	98	68
Area	NR 17	*A. ligamentina*	adult	unk	98.7	63.3
Area	NR 17	*A. ligamentina*	adult	unk	98.9	65.4
Area	NR 17	*A. ligamentina*	adult	unk	99	64.4
Area	NR 17	*A. ligamentina*	adult	unk	99.1	64
Area	NR 17	*A. ligamentina*	adult	unk	99.1	63.1
Area	NR 17	*A. ligamentina*	adult	unk	99.2	66.6
Area	NR 17	*A. ligamentina*	adult	unk	100.1	66.4
Area	NR 17	*A. ligamentina*	adult	unk	100.4	66.5
Area	NR 17	*A. ligamentina*	adult	unk	100.7	58.4
Area	NR 17	*A. ligamentina*	adult	unk	100.7	72.5

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 17	*A. ligamentina*	adult	unk	100.7	66.9
Area	NR 17	*A. ligamentina*	adult	unk	100.8	70.7
Area	NR 17	*A. ligamentina*	adult	unk	101	65.3
Area	NR 17	*A. ligamentina*	adult	unk	101.1	62.3
Area	NR 17	*A. ligamentina*	adult	unk	101.1	67.6
Area	NR 17	*A. ligamentina*	adult	unk	101.4	64.1
Area	NR 17	*A. ligamentina*	adult	unk	101.6	66.7
Area	NR 17	*A. ligamentina*	adult	unk	101.6	58.8
Area	NR 17	*A. ligamentina*	adult	unk	101.8	64.5
Area	NR 17	*A. ligamentina*	adult	unk	103.1	70.3
Area	NR 17	*A. ligamentina*	adult	unk	103.1	67.7
Area	NR 17	*A. ligamentina*	adult	unk	103.4	69.4
Area	NR 17	*A. ligamentina*	adult	unk	103.5	62.4
Area	NR 17	*A. ligamentina*	adult	unk	104.7	70.6
Area	NR 17	*A. ligamentina*	adult	unk	104.9	63.1
Area	NR 17	*A. ligamentina*	adult	unk	105	71.3
Area	NR 17	*A. ligamentina*	adult	unk	105.3	69.5
Area	NR 17	*A. ligamentina*	adult	unk	105.6	68.2
Area	NR 17	*A. ligamentina*	adult	unk	106	73.1
Area	NR 17	*A. ligamentina*	adult	unk	106.2	64.6
Area	NR 17	*A. ligamentina*	adult	unk	106.3	68.1
Area	NR 17	*A. ligamentina*	adult	unk	106.5	63
Area	NR 17	*A. ligamentina*	adult	unk	107	67.5
Area	NR 17	*A. ligamentina*	adult	unk	107.6	60.2
Area	NR 17	*A. ligamentina*	adult	unk	108.2	68.1
Area	NR 17	*A. ligamentina*	adult	unk	108.7	69.8
Area	NR 17	*A. ligamentina*	adult	unk	109	68.7
Area	NR 17	*A. ligamentina*	adult	unk	109.1	64.8
Area	NR 17	*A. ligamentina*	adult	unk	109.2	73.1
Area	NR 17	*A. ligamentina*	adult	unk	109.3	70.8
Area	NR 17	*A. ligamentina*	adult	unk	109.5	70.7
Area	NR 17	*A. ligamentina*	adult	unk	110.1	71.8
Area	NR 17	*A. ligamentina*	adult	unk	110.5	68.1
Area	NR 17	*A. ligamentina*	adult	unk	110.7	69.5
Area	NR 17	*A. ligamentina*	adult	unk	111.7	73.4
Area	NR 17	*A. ligamentina*	adult	unk	112.1	72.1

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 17	*A. ligamentina*	adult	unk	112.1	65.2
Area	NR 17	*A. ligamentina*	adult	unk	112.3	73.7
Area	NR 17	*A. ligamentina*	adult	unk	114.1	70.7
Area	NR 17	*A. ligamentina*	adult	unk	114.4	69.8
Area	NR 17	*A. ligamentina*	adult	unk	114.4	69.1
Area	NR 17	*A. ligamentina*	adult	unk	114.4	73.5
Area	NR 17	*A. ligamentina*	adult	unk	114.5	64.4
Area	NR 17	*A. ligamentina*	adult	unk	115.3	67.8
Area	NR 17	*A. ligamentina*	adult	unk	117.2	75
Area	NR 17	*A. ligamentina*	adult	unk	118	73.8
Area	NR 17	*A. ligamentina*	adult	unk	119.2	72.6
Area	NR 17	*A. ligamentina*	adult	unk	124.2	69.5
Area	NR 17	*A. ligamentina*	adult	unk	129.2	72.1
Area	NR 17	*A. ligamentina*	adult	unk	–	77.5
Area	NR 17	*C. tuberculata*	juv	unk	42.8	34.3
Area	NR 17	*C. tuberculata*	adult	unk	58.7	52.6
Area	NR 17	*E. dilatata*	adult	unk	76.4	23.2
Area	NR 17	*E. dilatata*	adult	unk	84.4	39
Area	NR 18	*A. ligamentina*	juv	unk	62.7	40.8
Area	NR 18	*A. ligamentina*	adult	unk	85.8	52.8
Area	NR 18	*A. ligamentina*	adult	unk	87.1	57
Area	NR 18	*A. ligamentina*	adult	unk	87.7	58.4
Area	NR 18	*A. ligamentina*	adult	unk	90.9	60.7
Area	NR 18	*A. ligamentina*	adult	unk	95.9	63.7
Area	NR 18	*A. ligamentina*	adult	unk	96.3	64.4
Area	NR 18	*A. ligamentina*	adult	unk	97.3	66.7
Area	NR 18	*A. ligamentina*	adult	unk	99.3	63.8
Area	NR 18	*A. ligamentina*	adult	unk	99.6	69
Area	NR 18	*A. ligamentina*	adult	unk	99.7	70
Area	NR 18	*A. ligamentina*	adult	unk	100.4	66.1
Area	NR 18	*A. ligamentina*	adult	unk	100.5	68.2
Area	NR 18	*A. ligamentina*	adult	unk	101.6	70.1
Area	NR 18	*A. ligamentina*	adult	unk	102.1	66
Area	NR 18	*A. ligamentina*	adult	unk	107.1	67.8
Area	NR 18	*A. ligamentina*	adult	unk	107.1	65
Area	NR 18	*A. ligamentina*	adult	unk	108.2	73.8

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 18	*A. ligamentina*	adult	unk	109.5	66.2
Area	NR 18	*A. ligamentina*	adult	unk	113.5	73.5
Area	NR 18	*A. ligamentina*	adult	unk	113.9	70
Area	NR 18	*A. ligamentina*	adult	unk	114.1	70.9
Area	NR 18	*A. ligamentina*	adult	unk	114.3	75.2
Area	NR 18	*A. ligamentina*	adult	unk	116.5	73.2
Area	NR 18	*A. ligamentina*	adult	unk	118	78.6
Area	NR 18	*A. ligamentina*	adult	unk	120	75.1
Area	NR 18	*A. ligamentina*	adult	unk	122.6	83.2
Area	NR 18	*A. ligamentina*	adult	unk	124.5	75.4
Area	NR 18	*C. tuberculata*	juv	unk	51.9	44.3
Area	NR 18	*C. tuberculata*	adult	unk	67.7	63
Area	NR 18	*C. tuberculata*	adult	unk	84.9	71.1
Area	NR 18	*C. tuberculata*	adult	unk	91.9	79.7
Area	NR 20	*A. ligamentina*	adult	unk	72.3	50.7
Area	NR 20	*A. ligamentina*	adult	unk	76	48.8
Area	NR 20	*A. ligamentina*	adult	unk	77.2	49.9
Area	NR 20	*A. ligamentina*	adult	unk	77.8	47.6
Area	NR 20	*A. ligamentina*	adult	unk	78	50
Area	NR 20	*A. ligamentina*	adult	unk	79.6	51.1
Area	NR 20	*A. ligamentina*	adult	unk	80.8	50
Area	NR 20	*A. ligamentina*	adult	unk	83.1	59
Area	NR 20	*A. ligamentina*	adult	unk	83.2	54.3
Area	NR 20	*A. ligamentina*	adult	unk	85.4	53.4
Area	NR 20	*A. ligamentina*	adult	unk	86.6	53.5
Area	NR 20	*A. ligamentina*	adult	unk	87.6	55.1
Area	NR 20	*A. ligamentina*	adult	unk	91.4	62.5
Area	NR 20	*A. ligamentina*	adult	unk	91.7	59.5
Area	NR 20	*A. ligamentina*	adult	unk	92.9	58.7
Area	NR 20	*A. ligamentina*	adult	unk	94.4	60.4
Area	NR 20	*A. ligamentina*	adult	unk	95.4	62.7
Area	NR 20	*A. ligamentina*	adult	unk	96.1	58.5
Area	NR 20	*A. ligamentina*	adult	unk	96.8	61.5
Area	NR 20	*A. ligamentina*	adult	unk	97.2	61.9
Area	NR 20	*A. ligamentina*	adult	unk	97.4	60.7
Area	NR 20	*A. ligamentina*	adult	unk	97.6	64.4

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 20	*A. ligamentina*	adult	unk	97.8	61
Area	NR 20	*A. ligamentina*	adult	unk	98	58.3
Area	NR 20	*A. ligamentina*	adult	unk	99.1	67.4
Area	NR 20	*A. ligamentina*	adult	unk	99.2	61
Area	NR 20	*A. ligamentina*	adult	unk	99.4	66
Area	NR 20	*A. ligamentina*	adult	unk	99.5	61.9
Area	NR 20	*A. ligamentina*	adult	unk	99.6	63.8
Area	NR 20	*A. ligamentina*	adult	unk	100.4	61.6
Area	NR 20	*A. ligamentina*	adult	unk	100.7	65.8
Area	NR 20	*A. ligamentina*	adult	unk	100.9	65.3
Area	NR 20	*A. ligamentina*	adult	unk	100.9	62
Area	NR 20	*A. ligamentina*	adult	unk	101	63.6
Area	NR 20	*A. ligamentina*	adult	unk	101.1	67.4
Area	NR 20	*A. ligamentina*	adult	unk	101.3	65.1
Area	NR 20	*A. ligamentina*	adult	unk	101.9	66.2
Area	NR 20	*A. ligamentina*	adult	unk	102.2	66.6
Area	NR 20	*A. ligamentina*	adult	unk	102.7	67.7
Area	NR 20	*A. ligamentina*	adult	unk	102.9	64.6
Area	NR 20	*A. ligamentina*	adult	unk	103.6	66.8
Area	NR 20	*A. ligamentina*	adult	unk	104.5	63.5
Area	NR 20	*A. ligamentina*	adult	unk	105	67.5
Area	NR 20	*A. ligamentina*	adult	unk	105.1	63.1
Area	NR 20	*A. ligamentina*	adult	unk	105.5	66.8
Area	NR 20	*A. ligamentina*	adult	unk	105.5	68.1
Area	NR 20	*A. ligamentina*	adult	unk	106.3	74.1
Area	NR 20	*A. ligamentina*	adult	unk	106.4	63.7
Area	NR 20	*A. ligamentina*	adult	unk	106.9	65.6
Area	NR 20	*A. ligamentina*	adult	unk	107.5	69.9
Area	NR 20	*A. ligamentina*	adult	unk	108.4	67.1
Area	NR 20	*A. ligamentina*	adult	unk	108.6	69.8
Area	NR 20	*A. ligamentina*	adult	unk	108.8	74.3
Area	NR 20	*A. ligamentina*	adult	unk	109.3	68.1
Area	NR 20	*A. ligamentina*	adult	unk	109.4	65.9
Area	NR 20	*A. ligamentina*	adult	unk	109.8	68.9
Area	NR 20	*A. ligamentina*	adult	unk	109.9	67.6
Area	NR 20	*A. ligamentina*	adult	unk	110.3	68.5

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	NR 20	*A. ligamentina*	adult	unk	111	69.4
Area	NR 20	*A. ligamentina*	adult	unk	111.1	72.6
Area	NR 20	*A. ligamentina*	adult	unk	112.6	66.3
Area	NR 20	*A. ligamentina*	adult	unk	112.8	68.7
Area	NR 20	*A. ligamentina*	adult	unk	112.9	72.1
Area	NR 20	*A. ligamentina*	adult	unk	113	68.8
Area	NR 20	*A. ligamentina*	adult	unk	115.2	69.9
Area	NR 20	*A. ligamentina*	adult	unk	115.2	75.8
Area	NR 20	*A. ligamentina*	adult	unk	115.4	70.7
Area	NR 20	*A. ligamentina*	adult	unk	117.3	71.9
Area	NR 20	*A. ligamentina*	adult	unk	118.1	74.4
Area	NR 20	*A. ligamentina*	adult	unk	119.6	73.3
Area	NR 20	*A. ligamentina*	adult	unk	119.6	73.7
Area	NR 20	*A. ligamentina*	adult	unk	120.3	72.4
Area	NR 20	*A. ligamentina*	adult	unk	123.4	75.6
Area	NR 20	*A. ligamentina*	adult	unk	125.7	75.9
Area	NR 20	*A. ligamentina*	adult	unk	–	64.5
Area	NR 20	*A. ligamentina*	adult	unk	–	62.3
Area	NR 20	*C. tuberculata*	juv	unk	53.9	45.7
Area	NR 20	*C. tuberculata*	adult	unk	58.1	53.1
Area	NR 20	*C. tuberculata*	adult	unk	77.2	70.2
Area	NR 20	*C. tuberculata*	adult	unk	78.4	68.7
Area	NR 20	*C. tuberculata*	adult	unk	82.2	65.2
Area	NR 20	*C. tuberculata*	adult	unk	84.1	66.7
Area	NR 20	*C. tuberculata*	adult	unk	88.7	76.2
Area	NR 20	*C. tuberculata*	adult	unk	91	69.1
Area	NR 20	*C. tuberculata*	adult	unk	91	69.9
Area	NR 20	*C. tuberculata*	adult	unk	96.2	68.8
Area	NR 20	*C. tuberculata*	adult	unk	99.3	70.2
Area	NR 20	*L. cardium*	adult	M	89.7	62.1
Area	Stonecliff	*A. ligamentina*	adult	unk	82	–
Area	Stonecliff	*A. ligamentina*	adult	unk	84	–
Area	Stonecliff	*A. ligamentina*	adult	unk	90	–
Area	Stonecliff	*A. ligamentina*	adult	unk	90	–
Area	Stonecliff	*A. ligamentina*	adult	unk	90	–
Area	Stonecliff	*A. ligamentina*	adult	unk	92	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Area	Stonecliff	*A. ligamentina*	adult	unk	94	–
Area	Stonecliff	*A. ligamentina*	adult	unk	96	–
Area	Stonecliff	*A. ligamentina*	adult	unk	99	–
Area	Stonecliff	*A. ligamentina*	adult	unk	101	–
Area	Stonecliff	*A. ligamentina*	adult	unk	103	–
Area	Stonecliff	*A. ligamentina*	adult	unk	105	–
Area	Stonecliff	*A. ligamentina*	adult	unk	106	–
Area	Stonecliff	*A. ligamentina*	adult	unk	108	–
Area	Stonecliff	*A. ligamentina*	adult	unk	115	–
Area	Stonecliff	*A. ligamentina*	adult	unk	121	–
Area	Stonecliff	*A. ligamentina*	adult	unk	122	–
Area	Thayer	*A. ligamentina*	adult	unk	83	–
Transect	Brooklyn	*A. ligamentina*	juv	unk	59.5	37.3
Transect	Brooklyn	*A. ligamentina*	juv	unk	61.4	39.2
Transect	Brooklyn	*A. ligamentina*	juv	unk	62.4	32.5
Transect	Brooklyn	*A. ligamentina*	juv	unk	63.1	40.7
Transect	Brooklyn	*A. ligamentina*	juv	unk	64.3	107.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	65.6	58.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	65.8	42
Transect	Brooklyn	*A. ligamentina*	adult	unk	67.5	42.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	69.2	44.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	69.7	45.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	73.5	50.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	77.7	51.7
Transect	Brooklyn	*A. ligamentina*	adult	unk	78.9	51.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	79.8	51.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	81	51.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	81.3	53.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	82.6	53.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	82.7	53.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	83.7	55.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	83.8	56.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	86.2	56
Transect	Brooklyn	*A. ligamentina*	adult	unk	86.2	57.3
Transect	Brooklyn	*A. ligamentina*	adult	unk	87	53.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	87.5	58.2

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Brooklyn	*A. ligamentina*	adult	unk	87.6	58.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	88.4	57.3
Transect	Brooklyn	*A. ligamentina*	adult	unk	88.7	57.7
Transect	Brooklyn	*A. ligamentina*	adult	unk	89.6	58.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	91.2	58.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	91.5	59.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	92.3	58.7
Transect	Brooklyn	*A. ligamentina*	adult	unk	92.7	57.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	93.2	64.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	94.1	58.3
Transect	Brooklyn	*A. ligamentina*	adult	unk	94.8	60.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	95.3	61.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	96	61.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	96.5	62.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	96.6	61.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	96.8	61.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	96.9	66.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	97.8	61.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	98	65.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	98.8	62.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	98.8	64.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	99.4	66.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	99.9	67
Transect	Brooklyn	*A. ligamentina*	adult	unk	100.1	65.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	100.3	66.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	101.2	65.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	101.3	66.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	101.6	66.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	101.7	66.3
Transect	Brooklyn	*A. ligamentina*	adult	unk	101.7	68.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	101.9	65.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	101.9	67.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	102.5	63.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	102.9	66.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	103	70.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	103	70.6

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Brooklyn	*A. ligamentina*	adult	unk	103.3	72
Transect	Brooklyn	*A. ligamentina*	adult	unk	104.3	69.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	104.6	69.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	104.8	71.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	105.4	70.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	105.4	71
Transect	Brooklyn	*A. ligamentina*	adult	unk	105.5	70.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	106.3	67.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	106.4	70
Transect	Brooklyn	*A. ligamentina*	adult	unk	106.8	72.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	107	68.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	107	69
Transect	Brooklyn	*A. ligamentina*	adult	unk	107.1	71.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	107.1	73.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	107.7	76.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	107.9	67.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	108.1	74
Transect	Brooklyn	*A. ligamentina*	adult	unk	108.7	71
Transect	Brooklyn	*A. ligamentina*	adult	unk	109	69.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	109	72.3
Transect	Brooklyn	*A. ligamentina*	adult	unk	109.3	68.7
Transect	Brooklyn	*A. ligamentina*	adult	unk	109.6	71.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	109.6	73.7
Transect	Brooklyn	*A. ligamentina*	adult	unk	109.8	71.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	109.8	72
Transect	Brooklyn	*A. ligamentina*	adult	unk	110.2	71.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	111.7	71.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	111.8	69.7
Transect	Brooklyn	*A. ligamentina*	adult	unk	111.8	71.4
Transect	Brooklyn	*A. ligamentina*	adult	unk	112	69.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	112	72.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	112.5	69.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	112.8	74.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	112.9	70.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	112.9	78
Transect	Brooklyn	*A. ligamentina*	adult	unk	113.3	66.3

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Brooklyn	*A. ligamentina*	adult	unk	113.5	70
Transect	Brooklyn	*A. ligamentina*	adult	unk	113.9	73
Transect	Brooklyn	*A. ligamentina*	adult	unk	113.9	73.6
Transect	Brooklyn	*A. ligamentina*	adult	unk	114.9	76.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	115.4	71.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	115.6	75.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	117.4	76.7
Transect	Brooklyn	*A. ligamentina*	adult	unk	117.6	75.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	117.7	74.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	117.8	79.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	118.1	73.3
Transect	Brooklyn	*A. ligamentina*	adult	unk	118.2	79.7
Transect	Brooklyn	*A. ligamentina*	adult	unk	119.4	77.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	120.2	74.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	120.4	79.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	120.9	73
Transect	Brooklyn	*A. ligamentina*	adult	unk	121.7	75.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	122.4	80.5
Transect	Brooklyn	*A. ligamentina*	adult	unk	123.2	72.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	123.4	77.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	124.8	78
Transect	Brooklyn	*A. ligamentina*	adult	unk	125.6	82.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	128.5	72.2
Transect	Brooklyn	*A. ligamentina*	adult	unk	128.9	80.1
Transect	Brooklyn	*A. ligamentina*	adult	unk	130.3	78.8
Transect	Brooklyn	*A. ligamentina*	adult	unk	131.8	81.9
Transect	Brooklyn	*A. ligamentina*	adult	unk	132.1	82.2
Transect	Brooklyn	*C. tuberculata*	adult	unk	87.8	69.6
Transect	Brooklyn	*C. tuberculata*	adult	unk	89	72.8
Transect	Brooklyn	*C. tuberculata*	adult	unk	90.2	74.2
Transect	Brooklyn	*C. tuberculata*	adult	unk	114.6	76.7
Transect	Brooklyn	*L. cardium*	Adult	M	75	52
Transect	Brooklyn	*T. verrucosa*	Adult	unk	73.8	40.5
Transect	Cunard	*A. ligamentina*	adult	unk	78	58.5
Transect	Cunard	*A. ligamentina*	adult	unk	82.6	56.3
Transect	Cunard	*A. ligamentina*	adult	unk	96.3	63.7

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Cunard	*A. ligamentina*	adult	unk	105.6	72.2
Transect	Cunard	*A. ligamentina*	adult	unk	119.5	77.7
Transect	Cunard	*A. ligamentina*	adult	unk	121.3	78.4
Transect	Cunard	*A. ligamentina*	adult	unk	122	75.6
Transect	Cunard	*A. ligamentina*	adult	unk	130.8	82.2
Transect	Cunard	*A. ligamentina*	adult	unk	135	85.9
Transect	Meadow Creek	*A. ligamentina*	juv	unk	43	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	55	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	56	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	59	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	60	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	60	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	61	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	62	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	62	–
Transect	Meadow Creek	*A. ligamentina*	juv	unk	63	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	66	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	69	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	69	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	70	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	72	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	75	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	76	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	77	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	78	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	79	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	79	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	80	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	80	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	80	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	81	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	81	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	81	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	81	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	82	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	82	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Meadow Creek	*A. ligamentina*	adult	unk	83	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	83	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	83	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	84	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	86	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	86	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	86	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	86	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	86	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	87	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	88	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	88	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	88	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	88	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	88	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	88	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	89	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	89	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	89	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	89	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	89	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	90	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	90	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	90	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	91	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	91	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	91	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	92	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	92	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	92	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	93	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	93	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	93	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	95	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	95	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	95	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Meadow Creek	*A. ligamentina*	adult	unk	95	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	95	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	96	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	97	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	97	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	97	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	97	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	98	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	98	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	98	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	99	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	99	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	99	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	99	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	99	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	100	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	100	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	100	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	100	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	100	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	100	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	101	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	102	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	102	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	102	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	102	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	103	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	103	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	104	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	104	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	104	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	104	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	104	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	105	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	105	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	105	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	105	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	106	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	107	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	108	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	108	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	108	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	109	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	109	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	109	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	109	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	110	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	111	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	112	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	112	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	112	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	112	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	112	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	112	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	112	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	113	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	114	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	115	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	115	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	115	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	115	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	115	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	115	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	116	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	116	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	117	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	117	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	117	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	117	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	117	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	118	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	118	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	118	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	118	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	118	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	119	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	119	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	119	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	119	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	119	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	120	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	120	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	121	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	122	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	122	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	124	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	124	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	125	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	125	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	125	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	126	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	127	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	131	–
Transect	Meadow Creek	*A. ligamentina*	adult	unk	135	–
Transect	Meadow Creek	*C. tuberculata*	juv	unk	53	–
Transect	Meadow Creek	*C. tuberculata*	juv	unk	54	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	56	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Meadow Creek	*C. tuberculata*	adult	unk	59	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	59	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	62	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	64	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	64	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	65	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	65	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	67	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	67	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	69	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	72	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	73	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	73	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	74	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	76	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	76	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	77	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	78	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	80	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	81	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	81	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	82	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	83	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	84	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	84	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	84	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	85	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	85	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	85	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	86	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	87	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	88	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	88	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	88	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	88	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	89	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Meadow Creek	*C. tuberculata*	adult	unk	91	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	91	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	91	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	91	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	92	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	92	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	93	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	93	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	93	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	94	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	94	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	95	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	95	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	96	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	96	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	97	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	97	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	97	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	98	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	98	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	98	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	99	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	100	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	101	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	101	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	102	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	104	–
Transect	Meadow Creek	*C. tuberculata*	adult	unk	106	–
Transect	Meadow Creek	*L. cardium*	Adult	M	92	–
Transect	NR03	*A. ligamentina*	juv	unk	54.4	34.6
Transect	NR03	*A. ligamentina*	juv	unk	60.8	54.1
Transect	NR03	*A. ligamentina*	juv	unk	60.9	41.3
Transect	NR03	*A. ligamentina*	juv	unk	61.6	39.6
Transect	NR03	*A. ligamentina*	juv	unk	63.9	42.6
Transect	NR03	*A. ligamentina*	adult	unk	66	48.1
Transect	NR03	*A. ligamentina*	adult	unk	70.2	45.9

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR03	*A. ligamentina*	adult	unk	76.8	48.6
Transect	NR03	*A. ligamentina*	adult	unk	79.1	53.1
Transect	NR03	*A. ligamentina*	adult	unk	79.5	52.2
Transect	NR03	*A. ligamentina*	adult	unk	79.9	56.2
Transect	NR03	*A. ligamentina*	adult	unk	80.5	56.7
Transect	NR03	*A. ligamentina*	adult	unk	81.2	54.5
Transect	NR03	*A. ligamentina*	adult	unk	81.3	53.3
Transect	NR03	*A. ligamentina*	adult	unk	81.9	56.6
Transect	NR03	*A. ligamentina*	adult	unk	82.1	57
Transect	NR03	*A. ligamentina*	adult	unk	82.2	54.1
Transect	NR03	*A. ligamentina*	adult	unk	84.2	57.5
Transect	NR03	*A. ligamentina*	adult	unk	85.1	56.1
Transect	NR03	*A. ligamentina*	adult	unk	85.8	57.3
Transect	NR03	*A. ligamentina*	adult	unk	85.8	59
Transect	NR03	*A. ligamentina*	adult	unk	86	56.8
Transect	NR03	*A. ligamentina*	adult	unk	86.2	55.6
Transect	NR03	*A. ligamentina*	adult	unk	86.3	58.4
Transect	NR03	*A. ligamentina*	adult	unk	86.4	57.6
Transect	NR03	*A. ligamentina*	adult	unk	86.4	60.8
Transect	NR03	*A. ligamentina*	adult	unk	87.2	55
Transect	NR03	*A. ligamentina*	adult	unk	87.3	57.5
Transect	NR03	*A. ligamentina*	adult	unk	87.3	60.1
Transect	NR03	*A. ligamentina*	adult	unk	87.5	60
Transect	NR03	*A. ligamentina*	adult	unk	87.7	74.1
Transect	NR03	*A. ligamentina*	adult	unk	88	59.3
Transect	NR03	*A. ligamentina*	adult	unk	88.6	57.8
Transect	NR03	*A. ligamentina*	adult	unk	88.9	61.5
Transect	NR03	*A. ligamentina*	adult	unk	89	61.5
Transect	NR03	*A. ligamentina*	adult	unk	89.4	59.5
Transect	NR03	*A. ligamentina*	adult	unk	90.3	62.2
Transect	NR03	*A. ligamentina*	adult	unk	91	64.3
Transect	NR03	*A. ligamentina*	adult	unk	91.1	61.3
Transect	NR03	*A. ligamentina*	adult	unk	91.9	61.3
Transect	NR03	*A. ligamentina*	adult	unk	92.3	63.5
Transect	NR03	*A. ligamentina*	adult	unk	92.6	62
Transect	NR03	*A. ligamentina*	adult	unk	93	64.5

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR03	*A. ligamentina*	adult	unk	93.5	66.4
Transect	NR03	*A. ligamentina*	adult	unk	94	64.1
Transect	NR03	*A. ligamentina*	adult	unk	94.2	62.5
Transect	NR03	*A. ligamentina*	adult	unk	95.5	68
Transect	NR03	*A. ligamentina*	adult	unk	95.7	62.1
Transect	NR03	*A. ligamentina*	adult	unk	95.9	61.4
Transect	NR03	*A. ligamentina*	adult	unk	96	64.3
Transect	NR03	*A. ligamentina*	adult	unk	96.7	67.2
Transect	NR03	*A. ligamentina*	adult	unk	96.8	66.8
Transect	NR03	*A. ligamentina*	adult	unk	97.3	63.4
Transect	NR03	*A. ligamentina*	adult	unk	97.3	67.7
Transect	NR03	*A. ligamentina*	adult	unk	97.3	69.6
Transect	NR03	*A. ligamentina*	adult	unk	97.7	65
Transect	NR03	*A. ligamentina*	adult	unk	97.8	71
Transect	NR03	*A. ligamentina*	adult	unk	98.1	67.3
Transect	NR03	*A. ligamentina*	adult	unk	98.1	69.4
Transect	NR03	*A. ligamentina*	adult	unk	98.5	61.3
Transect	NR03	*A. ligamentina*	adult	unk	98.9	63.9
Transect	NR03	*A. ligamentina*	adult	unk	99	64.5
Transect	NR03	*A. ligamentina*	adult	unk	99	65.2
Transect	NR03	*A. ligamentina*	adult	unk	99	73.9
Transect	NR03	*A. ligamentina*	adult	unk	99.9	66
Transect	NR03	*A. ligamentina*	adult	unk	100.1	64.5
Transect	NR03	*A. ligamentina*	adult	unk	100.2	70.7
Transect	NR03	*A. ligamentina*	adult	unk	100.9	66.6
Transect	NR03	*A. ligamentina*	adult	unk	101	69
Transect	NR03	*A. ligamentina*	adult	unk	101.1	72.1
Transect	NR03	*A. ligamentina*	adult	unk	101.4	65.1
Transect	NR03	*A. ligamentina*	adult	unk	101.6	65
Transect	NR03	*A. ligamentina*	adult	unk	101.7	65.5
Transect	NR03	*A. ligamentina*	adult	unk	101.9	62.9
Transect	NR03	*A. ligamentina*	adult	unk	102.2	67.1
Transect	NR03	*A. ligamentina*	adult	unk	102.2	71.1
Transect	NR03	*A. ligamentina*	adult	unk	102.3	66.5
Transect	NR03	*A. ligamentina*	adult	unk	103	67.5
Transect	NR03	*A. ligamentina*	adult	unk	103.1	72.5

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR03	*A. ligamentina*	adult	unk	103.2	71.5
Transect	NR03	*A. ligamentina*	adult	unk	103.3	68.5
Transect	NR03	*A. ligamentina*	adult	unk	103.4	68.6
Transect	NR03	*A. ligamentina*	adult	unk	103.4	69.1
Transect	NR03	*A. ligamentina*	adult	unk	103.4	73
Transect	NR03	*A. ligamentina*	adult	unk	103.8	68
Transect	NR03	*A. ligamentina*	adult	unk	103.8	70.4
Transect	NR03	*A. ligamentina*	adult	unk	103.9	64.3
Transect	NR03	*A. ligamentina*	adult	unk	104.2	67.4
Transect	NR03	*A. ligamentina*	adult	unk	104.5	66
Transect	NR03	*A. ligamentina*	adult	unk	104.7	71.1
Transect	NR03	*A. ligamentina*	adult	unk	104.8	70.2
Transect	NR03	*A. ligamentina*	adult	unk	104.9	70.3
Transect	NR03	*A. ligamentina*	adult	unk	105	67.9
Transect	NR03	*A. ligamentina*	adult	unk	105.1	73
Transect	NR03	*A. ligamentina*	adult	unk	105.4	66.6
Transect	NR03	*A. ligamentina*	adult	unk	105.5	71.6
Transect	NR03	*A. ligamentina*	adult	unk	105.7	70.2
Transect	NR03	*A. ligamentina*	adult	unk	106.2	71.1
Transect	NR03	*A. ligamentina*	adult	unk	106.3	66.3
Transect	NR03	*A. ligamentina*	adult	unk	106.4	75.6
Transect	NR03	*A. ligamentina*	adult	unk	106.5	73.2
Transect	NR03	*A. ligamentina*	adult	unk	106.6	69.3
Transect	NR03	*A. ligamentina*	adult	unk	106.7	72.8
Transect	NR03	*A. ligamentina*	adult	unk	107.1	70
Transect	NR03	*A. ligamentina*	adult	unk	107.4	68.2
Transect	NR03	*A. ligamentina*	adult	unk	107.5	70
Transect	NR03	*A. ligamentina*	adult	unk	107.5	72.6
Transect	NR03	*A. ligamentina*	adult	unk	107.6	67.2
Transect	NR03	*A. ligamentina*	adult	unk	107.6	68.8
Transect	NR03	*A. ligamentina*	adult	unk	107.6	69.7
Transect	NR03	*A. ligamentina*	adult	unk	107.8	73
Transect	NR03	*A. ligamentina*	adult	unk	107.8	73.9
Transect	NR03	*A. ligamentina*	adult	unk	108.2	75.2
Transect	NR03	*A. ligamentina*	adult	unk	108.4	72.3
Transect	NR03	*A. ligamentina*	adult	unk	108.4	74.7

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR03	*A. ligamentina*	adult	unk	108.5	70.2
Transect	NR03	*A. ligamentina*	adult	unk	108.7	71
Transect	NR03	*A. ligamentina*	adult	unk	108.7	73.3
Transect	NR03	*A. ligamentina*	adult	unk	108.8	75
Transect	NR03	*A. ligamentina*	adult	unk	109.1	70.3
Transect	NR03	*A. ligamentina*	adult	unk	109.2	68.7
Transect	NR03	*A. ligamentina*	adult	unk	109.2	71.5
Transect	NR03	*A. ligamentina*	adult	unk	109.3	70.5
Transect	NR03	*A. ligamentina*	adult	unk	109.4	67.7
Transect	NR03	*A. ligamentina*	adult	unk	109.4	70.4
Transect	NR03	*A. ligamentina*	adult	unk	109.5	71.7
Transect	NR03	*A. ligamentina*	adult	unk	109.9	78.2
Transect	NR03	*A. ligamentina*	adult	unk	109.9	81
Transect	NR03	*A. ligamentina*	adult	unk	110	68
Transect	NR03	*A. ligamentina*	adult	unk	110	70.7
Transect	NR03	*A. ligamentina*	adult	unk	110.1	63.6
Transect	NR03	*A. ligamentina*	adult	unk	110.2	71.9
Transect	NR03	*A. ligamentina*	adult	unk	110.3	72.5
Transect	NR03	*A. ligamentina*	adult	unk	110.4	72.3
Transect	NR03	*A. ligamentina*	adult	unk	110.5	75.6
Transect	NR03	*A. ligamentina*	adult	unk	110.6	67.8
Transect	NR03	*A. ligamentina*	adult	unk	110.8	74.2
Transect	NR03	*A. ligamentina*	adult	unk	110.9	74.1
Transect	NR03	*A. ligamentina*	adult	unk	111	70.3
Transect	NR03	*A. ligamentina*	adult	unk	111	71.5
Transect	NR03	*A. ligamentina*	adult	unk	111.1	71.1
Transect	NR03	*A. ligamentina*	adult	unk	111.1	72.9
Transect	NR03	*A. ligamentina*	adult	unk	111.3	72
Transect	NR03	*A. ligamentina*	adult	unk	111.3	74.5
Transect	NR03	*A. ligamentina*	adult	unk	111.4	72.8
Transect	NR03	*A. ligamentina*	adult	unk	111.7	74.9
Transect	NR03	*A. ligamentina*	adult	unk	112.2	68.6
Transect	NR03	*A. ligamentina*	adult	unk	112.4	75.2
Transect	NR03	*A. ligamentina*	adult	unk	112.7	68.8
Transect	NR03	*A. ligamentina*	adult	unk	112.8	74.8
Transect	NR03	*A. ligamentina*	adult	unk	113.2	74.1

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR03	*A. ligamentina*	adult	unk	113.2	74.2
Transect	NR03	*A. ligamentina*	adult	unk	113.4	75.5
Transect	NR03	*A. ligamentina*	adult	unk	113.6	76.4
Transect	NR03	*A. ligamentina*	adult	unk	113.7	80
Transect	NR03	*A. ligamentina*	adult	unk	113.8	74.3
Transect	NR03	*A. ligamentina*	adult	unk	113.9	74.3
Transect	NR03	*A. ligamentina*	adult	unk	114.1	74.2
Transect	NR03	*A. ligamentina*	adult	unk	114.1	75.8
Transect	NR03	*A. ligamentina*	adult	unk	114.4	71.6
Transect	NR03	*A. ligamentina*	adult	unk	114.4	76.8
Transect	NR03	*A. ligamentina*	adult	unk	114.7	71.1
Transect	NR03	*A. ligamentina*	adult	unk	115.2	69.4
Transect	NR03	*A. ligamentina*	adult	unk	115.4	73.2
Transect	NR03	*A. ligamentina*	adult	unk	115.7	69.5
Transect	NR03	*A. ligamentina*	adult	unk	116.1	76.9
Transect	NR03	*A. ligamentina*	adult	unk	116.7	72.8
Transect	NR03	*A. ligamentina*	adult	unk	116.9	69.7
Transect	NR03	*A. ligamentina*	adult	unk	117	73.2
Transect	NR03	*A. ligamentina*	adult	unk	117	75.7
Transect	NR03	*A. ligamentina*	adult	unk	117.2	77
Transect	NR03	*A. ligamentina*	adult	unk	117.4	72
Transect	NR03	*A. ligamentina*	adult	unk	117.9	74.3
Transect	NR03	*A. ligamentina*	adult	unk	118.2	76.1
Transect	NR03	*A. ligamentina*	adult	unk	118.5	84.8
Transect	NR03	*A. ligamentina*	adult	unk	118.6	78.2
Transect	NR03	*A. ligamentina*	adult	unk	118.8	74.9
Transect	NR03	*A. ligamentina*	adult	unk	119.7	73.5
Transect	NR03	*A. ligamentina*	adult	unk	120	74.7
Transect	NR03	*A. ligamentina*	adult	unk	120.1	76.3
Transect	NR03	*A. ligamentina*	adult	unk	120.1	78.1
Transect	NR03	*A. ligamentina*	adult	unk	120.2	79.5
Transect	NR03	*A. ligamentina*	adult	unk	120.4	76.1
Transect	NR03	*A. ligamentina*	adult	unk	120.6	76.2
Transect	NR03	*A. ligamentina*	adult	unk	120.7	77.8
Transect	NR03	*A. ligamentina*	adult	unk	121.3	77.4
Transect	NR03	*A. ligamentina*	adult	unk	121.5	74.7

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR03	*A. ligamentina*	adult	unk	121.5	78.2
Transect	NR03	*A. ligamentina*	adult	unk	122.1	75.6
Transect	NR03	*A. ligamentina*	adult	unk	122.5	77.2
Transect	NR03	*A. ligamentina*	adult	unk	122.8	75.1
Transect	NR03	*A. ligamentina*	adult	unk	123.1	75.5
Transect	NR03	*A. ligamentina*	adult	unk	124.4	75
Transect	NR03	*A. ligamentina*	adult	unk	125.9	81.6
Transect	NR03	*A. ligamentina*	adult	unk	126.4	80.7
Transect	NR03	*A. ligamentina*	adult	unk	126.7	80.3
Transect	NR03	*A. ligamentina*	adult	unk	132	83.3
Transect	NR03	*C. tuberculata*	adult	unk	61.7	52.7
Transect	NR03	*C. tuberculata*	adult	unk	67.2	57.4
Transect	NR03	*C. tuberculata*	adult	unk	70	60.7
Transect	NR03	*C. tuberculata*	adult	unk	74.2	66.3
Transect	NR03	*C. tuberculata*	adult	unk	74.8	63.7
Transect	NR03	*C. tuberculata*	adult	unk	76	65.2
Transect	NR03	*C. tuberculata*	adult	unk	76.2	64.9
Transect	NR03	*C. tuberculata*	adult	unk	78	64.7
Transect	NR03	*C. tuberculata*	adult	unk	79.3	69.5
Transect	NR03	*C. tuberculata*	adult	unk	80.8	65.4
Transect	NR03	*C. tuberculata*	adult	unk	80.8	69.3
Transect	NR03	*C. tuberculata*	adult	unk	82.9	70.7
Transect	NR03	*C. tuberculata*	adult	unk	83	71.6
Transect	NR03	*C. tuberculata*	adult	unk	83.5	67.8
Transect	NR03	*C. tuberculata*	adult	unk	83.9	72.7
Transect	NR03	*C. tuberculata*	adult	unk	84.1	78.6
Transect	NR03	*C. tuberculata*	adult	unk	84.4	70.1
Transect	NR03	*C. tuberculata*	adult	unk	85.1	75.1
Transect	NR03	*C. tuberculata*	adult	unk	85.4	72.3
Transect	NR03	*C. tuberculata*	adult	unk	86.2	74.7
Transect	NR03	*C. tuberculata*	adult	unk	86.3	66.4
Transect	NR03	*C. tuberculata*	adult	unk	86.3	76.4
Transect	NR03	*C. tuberculata*	adult	unk	87.3	75.2
Transect	NR03	*C. tuberculata*	adult	unk	87.5	74.4
Transect	NR03	*C. tuberculata*	adult	unk	87.7	74.1
Transect	NR03	*C. tuberculata*	adult	unk	88.3	81

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR03	*C. tuberculata*	adult	unk	88.4	75.5
Transect	NR03	*C. tuberculata*	adult	unk	88.5	71.4
Transect	NR03	*C. tuberculata*	adult	unk	88.6	78.9
Transect	NR03	*C. tuberculata*	adult	unk	89.7	77.8
Transect	NR03	*C. tuberculata*	adult	unk	90.3	78.1
Transect	NR03	*C. tuberculata*	adult	unk	90.7	72.8
Transect	NR03	*C. tuberculata*	adult	unk	90.7	79.8
Transect	NR03	*C. tuberculata*	adult	unk	91.7	72.9
Transect	NR03	*C. tuberculata*	adult	unk	92.1	81.9
Transect	NR03	*C. tuberculata*	adult	unk	92.1	85.9
Transect	NR03	*C. tuberculata*	adult	unk	92.6	77.2
Transect	NR03	*C. tuberculata*	adult	unk	92.6	80.2
Transect	NR03	*C. tuberculata*	adult	unk	93.5	80.2
Transect	NR03	*C. tuberculata*	adult	unk	93.8	24.2
Transect	NR03	*C. tuberculata*	adult	unk	94.1	78.7
Transect	NR03	*C. tuberculata*	adult	unk	94.2	73.7
Transect	NR03	*C. tuberculata*	adult	unk	94.5	79.3
Transect	NR03	*C. tuberculata*	adult	unk	94.9	79.9
Transect	NR03	*C. tuberculata*	adult	unk	97.8	83.5
Transect	NR03	*C. tuberculata*	adult	unk	98.4	80.4
Transect	NR03	*C. tuberculata*	adult	unk	99.4	76.6
Transect	NR03	*E. dilatata*	Adult	unk	71	35.1
Transect	NR03	*T. verrucosa*	Adult	unk	69.9	38.9
Transect	NR04	*A. ligamentina*	juv	unk	63.7	44
Transect	NR04	*A. ligamentina*	adult	unk	70.8	49.8
Transect	NR04	*A. ligamentina*	adult	unk	73.4	50.9
Transect	NR04	*A. ligamentina*	adult	unk	75.6	54.1
Transect	NR04	*A. ligamentina*	adult	unk	77.1	49.9
Transect	NR04	*A. ligamentina*	adult	unk	77.3	51.9
Transect	NR04	*A. ligamentina*	adult	unk	77.5	55
Transect	NR04	*A. ligamentina*	adult	unk	77.9	55.1
Transect	NR04	*A. ligamentina*	adult	unk	80.9	55.6
Transect	NR04	*A. ligamentina*	adult	unk	82.6	53.2
Transect	NR04	*A. ligamentina*	adult	unk	82.6	56
Transect	NR04	*A. ligamentina*	adult	unk	83.4	52.9
Transect	NR04	*A. ligamentina*	adult	unk	83.6	54.9

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR04	*A. ligamentina*	adult	unk	86.9	60.8
Transect	NR04	*A. ligamentina*	adult	unk	87	56.5
Transect	NR04	*A. ligamentina*	adult	unk	90.3	58.7
Transect	NR04	*A. ligamentina*	adult	unk	91.3	61.9
Transect	NR04	*A. ligamentina*	adult	unk	92.9	61.9
Transect	NR04	*A. ligamentina*	adult	unk	93.4	60
Transect	NR04	*A. ligamentina*	adult	unk	95.5	62.8
Transect	NR04	*A. ligamentina*	adult	unk	95.9	63.1
Transect	NR04	*A. ligamentina*	adult	unk	96	63.4
Transect	NR04	*A. ligamentina*	adult	unk	96.8	65
Transect	NR04	*A. ligamentina*	adult	unk	98	62.9
Transect	NR04	*A. ligamentina*	adult	unk	98.8	64.6
Transect	NR04	*A. ligamentina*	adult	unk	98.9	69
Transect	NR04	*A. ligamentina*	adult	unk	99	60.1
Transect	NR04	*A. ligamentina*	adult	unk	99.6	60.9
Transect	NR04	*A. ligamentina*	adult	unk	99.9	63.6
Transect	NR04	*A. ligamentina*	adult	unk	99.9	64
Transect	NR04	*A. ligamentina*	adult	unk	101	65
Transect	NR04	*A. ligamentina*	adult	unk	104	67.5
Transect	NR04	*A. ligamentina*	adult	unk	104.9	66
Transect	NR04	*A. ligamentina*	adult	unk	104.9	72.5
Transect	NR04	*A. ligamentina*	adult	unk	105	67
Transect	NR04	*A. ligamentina*	adult	unk	105.7	67.3
Transect	NR04	*A. ligamentina*	adult	unk	106.4	69.8
Transect	NR04	*A. ligamentina*	adult	unk	107.8	69.9
Transect	NR04	*A. ligamentina*	adult	unk	108.2	70.9
Transect	NR04	*A. ligamentina*	adult	unk	110	71.9
Transect	NR04	*A. ligamentina*	adult	unk	110.9	66.6
Transect	NR04	*A. ligamentina*	adult	unk	110.9	71.9
Transect	NR04	*A. ligamentina*	adult	unk	114.4	71.1
Transect	NR04	*A. ligamentina*	adult	unk	126.9	–
Transect	NR04	*C. tuberculata*	adult	unk	84.1	70.5
Transect	NR04	*C. tuberculata*	adult	unk	92.5	78
Transect	NR04	*E. dilatata*	Adult	unk	74.7	38
Transect	NR05	*A. ligamentina*	adult	unk	68.4	45
Transect	NR05	*A. ligamentina*	adult	unk	68.5	44.1

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR05	*A. ligamentina*	adult	unk	73.2	48.7
Transect	NR05	*A. ligamentina*	adult	unk	74.5	47.3
Transect	NR05	*A. ligamentina*	adult	unk	76.7	52.6
Transect	NR05	*A. ligamentina*	adult	unk	78	53.7
Transect	NR05	*A. ligamentina*	adult	unk	82.3	55.6
Transect	NR05	*A. ligamentina*	adult	unk	83.6	54.6
Transect	NR05	*A. ligamentina*	adult	unk	84.4	54.8
Transect	NR05	*A. ligamentina*	adult	unk	84.7	54.8
Transect	NR05	*A. ligamentina*	adult	unk	85.1	56.2
Transect	NR05	*A. ligamentina*	adult	unk	85.3	55.4
Transect	NR05	*A. ligamentina*	adult	unk	85.7	58
Transect	NR05	*A. ligamentina*	adult	unk	85.9	59.1
Transect	NR05	*A. ligamentina*	adult	unk	86.4	56.9
Transect	NR05	*A. ligamentina*	adult	unk	88	58.9
Transect	NR05	*A. ligamentina*	adult	unk	88.1	56
Transect	NR05	*A. ligamentina*	adult	unk	88.3	58.9
Transect	NR05	*A. ligamentina*	adult	unk	88.8	57.1
Transect	NR05	*A. ligamentina*	adult	unk	89.1	63.6
Transect	NR05	*A. ligamentina*	adult	unk	89.4	58.8
Transect	NR05	*A. ligamentina*	adult	unk	89.4	60.6
Transect	NR05	*A. ligamentina*	adult	unk	90.5	59.2
Transect	NR05	*A. ligamentina*	adult	unk	91	52.3
Transect	NR05	*A. ligamentina*	adult	unk	91.3	61.4
Transect	NR05	*A. ligamentina*	adult	unk	94.9	63.3
Transect	NR05	*A. ligamentina*	adult	unk	95.8	63.8
Transect	NR05	*A. ligamentina*	adult	unk	95.9	62.3
Transect	NR05	*A. ligamentina*	adult	unk	96.8	61.7
Transect	NR05	*A. ligamentina*	adult	unk	96.8	64.7
Transect	NR05	*A. ligamentina*	adult	unk	97.1	67.9
Transect	NR05	*A. ligamentina*	adult	unk	97.6	65.2
Transect	NR05	*A. ligamentina*	adult	unk	98.2	70.1
Transect	NR05	*A. ligamentina*	adult	unk	99.1	70.5
Transect	NR05	*A. ligamentina*	adult	unk	100.5	67.7
Transect	NR05	*A. ligamentina*	adult	unk	100.5	67.7
Transect	NR05	*A. ligamentina*	adult	unk	101.8	67.6
Transect	NR05	*A. ligamentina*	adult	unk	103.9	66.3

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR05	*A. ligamentina*	adult	unk	106.1	68
Transect	NR05	*A. ligamentina*	adult	unk	106.8	69.9
Transect	NR05	*A. ligamentina*	adult	unk	106.9	69.8
Transect	NR05	*A. ligamentina*	adult	unk	107	71.1
Transect	NR05	*A. ligamentina*	adult	unk	108.1	65.6
Transect	NR05	*A. ligamentina*	adult	unk	108.4	76.6
Transect	NR05	*A. ligamentina*	adult	unk	109.1	74
Transect	NR05	*C. tuberculata*	adult	unk	62.3	56.3
Transect	NR05	*C. tuberculata*	adult	unk	69.8	54.4
Transect	NR05	*C. tuberculata*	adult	unk	73.7	66.6
Transect	NR05	*C. tuberculata*	adult	unk	85.2	52.8
Transect	NR07	*A. ligamentina*	juv	unk	37.6	24.5
Transect	NR07	*A. ligamentina*	juv	unk	44.9	30.1
Transect	NR07	*A. ligamentina*	juv	unk	53.3	35.1
Transect	NR07	*A. ligamentina*	juv	unk	53.5	37
Transect	NR07	*A. ligamentina*	juv	unk	54.5	32.5
Transect	NR07	*A. ligamentina*	juv	unk	55.7	42.8
Transect	NR07	*A. ligamentina*	juv	unk	56.6	58.7
Transect	NR07	*A. ligamentina*	juv	unk	57.3	35.4
Transect	NR07	*A. ligamentina*	juv	unk	59.5	37.4
Transect	NR07	*A. ligamentina*	juv	unk	62	38.8
Transect	NR07	*A. ligamentina*	juv	unk	62.1	39.5
Transect	NR07	*A. ligamentina*	juv	unk	62.5	41.1
Transect	NR07	*A. ligamentina*	adult	unk	67.6	44.4
Transect	NR07	*A. ligamentina*	adult	unk	68	44.2
Transect	NR07	*A. ligamentina*	adult	unk	68.5	42.1
Transect	NR07	*A. ligamentina*	adult	unk	74.4	50.5
Transect	NR07	*A. ligamentina*	adult	unk	74.5	54
Transect	NR07	*A. ligamentina*	adult	unk	74.8	52.5
Transect	NR07	*A. ligamentina*	adult	unk	76.1	50
Transect	NR07	*A. ligamentina*	adult	unk	76.1	57
Transect	NR07	*A. ligamentina*	adult	unk	77.1	51.8
Transect	NR07	*A. ligamentina*	adult	unk	77.4	53.5
Transect	NR07	*A. ligamentina*	adult	unk	77.5	49.4
Transect	NR07	*A. ligamentina*	adult	unk	77.5	51.7
Transect	NR07	*A. ligamentina*	adult	unk	78	52.5

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR07	*A. ligamentina*	adult	unk	79.3	51.3
Transect	NR07	*A. ligamentina*	adult	unk	79.6	53.2
Transect	NR07	*A. ligamentina*	adult	unk	80.1	50.9
Transect	NR07	*A. ligamentina*	adult	unk	80.3	32.4
Transect	NR07	*A. ligamentina*	adult	unk	80.4	52.6
Transect	NR07	*A. ligamentina*	adult	unk	81.4	54.9
Transect	NR07	*A. ligamentina*	adult	unk	81.5	54.1
Transect	NR07	*A. ligamentina*	adult	unk	81.7	55.3
Transect	NR07	*A. ligamentina*	adult	unk	82.5	50.7
Transect	NR07	*A. ligamentina*	adult	unk	82.6	52.7
Transect	NR07	*A. ligamentina*	adult	unk	82.6	56.5
Transect	NR07	*A. ligamentina*	adult	unk	83.1	53
Transect	NR07	*A. ligamentina*	adult	unk	83.2	54.3
Transect	NR07	*A. ligamentina*	adult	unk	83.3	58.1
Transect	NR07	*A. ligamentina*	adult	unk	84.2	54.9
Transect	NR07	*A. ligamentina*	adult	unk	84.2	55.7
Transect	NR07	*A. ligamentina*	adult	unk	84.7	53.5
Transect	NR07	*A. ligamentina*	adult	unk	84.7	56.9
Transect	NR07	*A. ligamentina*	adult	unk	85.5	56.8
Transect	NR07	*A. ligamentina*	adult	unk	85.5	59.5
Transect	NR07	*A. ligamentina*	adult	unk	85.7	58
Transect	NR07	*A. ligamentina*	adult	unk	85.9	61.6
Transect	NR07	*A. ligamentina*	adult	unk	86	57.4
Transect	NR07	*A. ligamentina*	adult	unk	86.3	58.2
Transect	NR07	*A. ligamentina*	adult	unk	88.2	62.8
Transect	NR07	*A. ligamentina*	adult	unk	88.4	62.4
Transect	NR07	*A. ligamentina*	adult	unk	88.5	59.5
Transect	NR07	*A. ligamentina*	adult	unk	88.8	56.3
Transect	NR07	*A. ligamentina*	adult	unk	89	61.2
Transect	NR07	*A. ligamentina*	adult	unk	89.1	58.4
Transect	NR07	*A. ligamentina*	adult	unk	90	59.9
Transect	NR07	*A. ligamentina*	adult	unk	90	63.1
Transect	NR07	*A. ligamentina*	adult	unk	90.2	57.1
Transect	NR07	*A. ligamentina*	adult	unk	90.5	57.1
Transect	NR07	*A. ligamentina*	adult	unk	90.5	60.2
Transect	NR07	*A. ligamentina*	adult	unk	91.1	53.9

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR07	*A. ligamentina*	adult	unk	91.1	59.9
Transect	NR07	*A. ligamentina*	adult	unk	91.3	64.9
Transect	NR07	*A. ligamentina*	adult	unk	91.6	60
Transect	NR07	*A. ligamentina*	adult	unk	92.1	60.1
Transect	NR07	*A. ligamentina*	adult	unk	92.9	60.6
Transect	NR07	*A. ligamentina*	adult	unk	93.2	61.9
Transect	NR07	*A. ligamentina*	adult	unk	93.4	58.2
Transect	NR07	*A. ligamentina*	adult	unk	93.6	59.7
Transect	NR07	*A. ligamentina*	adult	unk	95.3	61
Transect	NR07	*A. ligamentina*	adult	unk	95.6	63.7
Transect	NR07	*A. ligamentina*	adult	unk	95.6	64.6
Transect	NR07	*A. ligamentina*	adult	unk	95.7	66.9
Transect	NR07	*A. ligamentina*	adult	unk	95.8	63.3
Transect	NR07	*A. ligamentina*	adult	unk	96	67.2
Transect	NR07	*A. ligamentina*	adult	unk	96.2	67.5
Transect	NR07	*A. ligamentina*	adult	unk	96.9	63.8
Transect	NR07	*A. ligamentina*	adult	unk	97.9	63.4
Transect	NR07	*A. ligamentina*	adult	unk	98.7	62
Transect	NR07	*A. ligamentina*	adult	unk	98.9	63.1
Transect	NR07	*A. ligamentina*	adult	unk	99	64.6
Transect	NR07	*A. ligamentina*	adult	unk	99.5	65.6
Transect	NR07	*A. ligamentina*	adult	unk	99.7	63.2
Transect	NR07	*A. ligamentina*	adult	unk	100.5	65.8
Transect	NR07	*A. ligamentina*	adult	unk	100.8	65.7
Transect	NR07	*A. ligamentina*	adult	unk	100.8	65.8
Transect	NR07	*A. ligamentina*	adult	unk	101	64.8
Transect	NR07	*A. ligamentina*	adult	unk	101	66.8
Transect	NR07	*A. ligamentina*	adult	unk	101	67.9
Transect	NR07	*A. ligamentina*	adult	unk	101.5	69.8
Transect	NR07	*A. ligamentina*	adult	unk	101.6	68.3
Transect	NR07	*A. ligamentina*	adult	unk	101.7	65.7
Transect	NR07	*A. ligamentina*	adult	unk	101.7	69.8
Transect	NR07	*A. ligamentina*	adult	unk	102.5	67.2
Transect	NR07	*A. ligamentina*	adult	unk	102.6	70.3
Transect	NR07	*A. ligamentina*	adult	unk	103	70.5
Transect	NR07	*A. ligamentina*	adult	unk	103.4	70.5

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR07	*A. ligamentina*	adult	unk	103.7	69.8
Transect	NR07	*A. ligamentina*	adult	unk	103.8	69.1
Transect	NR07	*A. ligamentina*	adult	unk	103.9	66.9
Transect	NR07	*A. ligamentina*	adult	unk	105	74.4
Transect	NR07	*A. ligamentina*	adult	unk	105.1	69.2
Transect	NR07	*A. ligamentina*	adult	unk	105.2	69.8
Transect	NR07	*A. ligamentina*	adult	unk	105.6	67.8
Transect	NR07	*A. ligamentina*	adult	unk	105.7	67.9
Transect	NR07	*A. ligamentina*	adult	unk	105.9	72.1
Transect	NR07	*A. ligamentina*	adult	unk	107.6	64.7
Transect	NR07	*A. ligamentina*	adult	unk	107.6	74.9
Transect	NR07	*A. ligamentina*	adult	unk	108.1	74.2
Transect	NR07	*A. ligamentina*	adult	unk	109.2	69.4
Transect	NR07	*A. ligamentina*	adult	unk	109.8	71.2
Transect	NR07	*A. ligamentina*	adult	unk	110.9	71.6
Transect	NR07	*A. ligamentina*	adult	unk	111.5	71.5
Transect	NR07	*A. ligamentina*	adult	unk	113.4	72.8
Transect	NR07	*A. ligamentina*	adult	unk	114.9	76.5
Transect	NR07	*A. ligamentina*	adult	unk	118.3	78.1
Transect	NR07	*A. ligamentina*	adult	unk	121.1	75.3
Transect	NR08	*A. ligamentina*	juv	unk	62.4	40.6
Transect	NR08	*A. ligamentina*	adult	unk	71.7	48.5
Transect	NR08	*A. ligamentina*	adult	unk	78.9	54.2
Transect	NR08	*A. ligamentina*	adult	unk	82	56.2
Transect	NR08	*A. ligamentina*	adult	unk	85.1	57.6
Transect	NR08	*A. ligamentina*	adult	unk	85.6	54.7
Transect	NR08	*A. ligamentina*	adult	unk	86.4	55.4
Transect	NR08	*A. ligamentina*	adult	unk	86.9	57.2
Transect	NR08	*A. ligamentina*	adult	unk	91.2	60.6
Transect	NR08	*A. ligamentina*	adult	unk	91.4	62.3
Transect	NR08	*A. ligamentina*	adult	unk	93.6	61.9
Transect	NR08	*A. ligamentina*	adult	unk	98.7	66.8
Transect	NR08	*A. ligamentina*	adult	unk	98.8	64.7
Transect	NR08	*A. ligamentina*	adult	unk	99.8	59.6
Transect	NR08	*A. ligamentina*	adult	unk	102.8	67
Transect	NR08	*A. ligamentina*	adult	unk	105.5	73.5

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR08	*A. ligamentina*	adult	unk	108.6	65.1
Transect	NR08	*A. ligamentina*	adult	unk	111.9	73.2
Transect	NR08	*A. ligamentina*	adult	unk	112.1	72.1
Transect	NR08	*A. ligamentina*	adult	unk	119	75.6
Transect	NR08	*A. ligamentina*	adult	unk	119.3	77.7
Transect	NR10	*A. ligamentina*	adult	unk	80.4	55
Transect	NR10	*A. ligamentina*	adult	unk	90.5	59.9
Transect	NR10	*A. ligamentina*	adult	unk	98.1	60.4
Transect	NR10	*A. ligamentina*	adult	unk	98.1	62.8
Transect	NR10	*A. ligamentina*	adult	unk	105.3	72.1
Transect	NR10	*A. ligamentina*	adult	unk	108.8	68.9
Transect	NR10	*A. ligamentina*	adult	unk	109.5	72.5
Transect	NR10	*A. ligamentina*	adult	unk	116.7	72
Transect	NR12	*A. ligamentina*	adult	unk	74.3	50.1
Transect	NR12	*A. ligamentina*	adult	unk	85.6	53.3
Transect	NR12	*A. ligamentina*	adult	unk	89	–
Transect	NR12	*A. ligamentina*	adult	unk	94.5	61.9
Transect	NR12	*A. ligamentina*	adult	unk	96.7	63.5
Transect	NR12	*A. ligamentina*	adult	unk	105.3	69.5
Transect	NR12	*A. ligamentina*	adult	unk	114.2	74.9
Transect	NR12	*A. ligamentina*	adult	unk	115.5	75.5
Transect	NR12	*A. ligamentina*	adult	unk	117.2	68
Transect	NR12	*A. ligamentina*	adult	unk	118.5	74.9
Transect	NR12	*A. ligamentina*	adult	unk	120.3	74.8
Transect	NR14	*A. ligamentina*	adult	unk	86.2	60.1
Transect	NR14	*A. ligamentina*	adult	unk	88.8	56.7
Transect	NR14	*A. ligamentina*	adult	unk	123.2	80.1
Transect	NR14	*A. ligamentina*	adult	unk	124	78.9
Transect	NR14	*C. tuberculata*	adult	unk	66.5	54.7
Transect	NR14	*C. tuberculata*	adult	unk	72.7	61.7
Transect	NR14	*T. verrucosa*	Adult	unk	70	36.9
Transect	NR17	*A. ligamentina*	juv	unk	63	39.3
Transect	NR17	*A. ligamentina*	adult	unk	75.2	50.3
Transect	NR17	*A. ligamentina*	adult	unk	75.8	48.6
Transect	NR17	*A. ligamentina*	adult	unk	77.2	65
Transect	NR17	*A. ligamentina*	adult	unk	80.9	52.1

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR17	*A. ligamentina*	adult	unk	83.4	55.5
Transect	NR17	*A. ligamentina*	adult	unk	83.9	55.5
Transect	NR17	*A. ligamentina*	adult	unk	85.5	52.7
Transect	NR17	*A. ligamentina*	adult	unk	86.1	54.1
Transect	NR17	*A. ligamentina*	adult	unk	88.7	54.6
Transect	NR17	*A. ligamentina*	adult	unk	93.7	54.1
Transect	NR17	*A. ligamentina*	adult	unk	96.3	58.8
Transect	NR17	*A. ligamentina*	adult	unk	97.2	60.1
Transect	NR17	*A. ligamentina*	adult	unk	97.6	56.9
Transect	NR17	*A. ligamentina*	adult	unk	98.8	67.7
Transect	NR17	*A. ligamentina*	adult	unk	99	64.4
Transect	NR17	*A. ligamentina*	adult	unk	99.8	64.1
Transect	NR17	*A. ligamentina*	adult	unk	101.2	64.7
Transect	NR17	*A. ligamentina*	adult	unk	101.3	63.4
Transect	NR17	*A. ligamentina*	adult	unk	102.6	69.3
Transect	NR17	*A. ligamentina*	adult	unk	104	65.1
Transect	NR17	*A. ligamentina*	adult	unk	107.4	69.4
Transect	NR17	*A. ligamentina*	adult	unk	107.5	67
Transect	NR17	*A. ligamentina*	adult	unk	108.8	67.6
Transect	NR17	*A. ligamentina*	adult	unk	109.2	64.9
Transect	NR17	*A. ligamentina*	adult	unk	110.6	66.3
Transect	NR17	*A. ligamentina*	adult	unk	111.5	68.2
Transect	NR17	*A. ligamentina*	adult	unk	111.8	66.3
Transect	NR17	*A. ligamentina*	adult	unk	112.9	65.8
Transect	NR17	*A. ligamentina*	adult	unk	114.1	–
Transect	NR17	*A. ligamentina*	adult	unk	114.4	71.1
Transect	NR17	*A. ligamentina*	adult	unk	115	69.6
Transect	NR17	*A. ligamentina*	adult	unk	115.3	68.3
Transect	NR17	*A. ligamentina*	adult	unk	115.5	72
Transect	NR17	*A. ligamentina*	adult	unk	116	72.4
Transect	NR17	*A. ligamentina*	adult	unk	116.2	70.3
Transect	NR17	*A. ligamentina*	adult	unk	116.8	78.1
Transect	NR17	*A. ligamentina*	adult	unk	117.1	71.9
Transect	NR17	*A. ligamentina*	adult	unk	117.7	70
Transect	NR17	*A. ligamentina*	adult	unk	119.1	71.2
Transect	NR17	*A. ligamentina*	adult	unk	121.5	77.3

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR17	*A. ligamentina*	adult	unk	121.6	72
Transect	NR17	*A. ligamentina*	adult	unk	122.1	77.5
Transect	NR17	*A. ligamentina*	adult	unk	124.2	77.7
Transect	NR17	*A. ligamentina*	adult	unk	131.9	77.7
Transect	NR17	*E. dilatata*	Adult	unk	76.1	36.8
Transect	NR18	*A. ligamentina*	adult	unk	74.9	52.6
Transect	NR18	*A. ligamentina*	adult	unk	77.1	47.4
Transect	NR18	*A. ligamentina*	adult	unk	82.2	56.2
Transect	NR18	*A. ligamentina*	adult	unk	87	58
Transect	NR18	*A. ligamentina*	adult	unk	90.2	56.7
Transect	NR18	*A. ligamentina*	adult	unk	100.7	68.6
Transect	NR18	*A. ligamentina*	adult	unk	112	68.3
Transect	NR18	*A. ligamentina*	adult	unk	118.4	75.4
Transect	NR18	*C. tuberculata*	juv	unk	32.7	27.5
Transect	NR18	*C. tuberculata*	adult	unk	70.7	55.8
Transect	NR20	*A. ligamentina*	juv	unk	57.5	33.6
Transect	NR20	*A. ligamentina*	adult	unk	67.8	44.2
Transect	NR20	*A. ligamentina*	adult	unk	72.8	48.4
Transect	NR20	*A. ligamentina*	adult	unk	76	51.8
Transect	NR20	*A. ligamentina*	adult	unk	77.1	44.9
Transect	NR20	*A. ligamentina*	adult	unk	78.1	51.6
Transect	NR20	*A. ligamentina*	adult	unk	78.2	47.8
Transect	NR20	*A. ligamentina*	adult	unk	82.3	54.3
Transect	NR20	*A. ligamentina*	adult	unk	83.7	52.7
Transect	NR20	*A. ligamentina*	adult	unk	86.4	53.3
Transect	NR20	*A. ligamentina*	adult	unk	86.5	51
Transect	NR20	*A. ligamentina*	adult	unk	87	52.6
Transect	NR20	*A. ligamentina*	adult	unk	87.6	55.5
Transect	NR20	*A. ligamentina*	adult	unk	87.8	53.4
Transect	NR20	*A. ligamentina*	adult	unk	88.9	52.6
Transect	NR20	*A. ligamentina*	adult	unk	91.5	54.3
Transect	NR20	*A. ligamentina*	adult	unk	91.7	54.2
Transect	NR20	*A. ligamentina*	adult	unk	92.4	60.9
Transect	NR20	*A. ligamentina*	adult	unk	95.3	68.6
Transect	NR20	*A. ligamentina*	adult	unk	95.7	58.1
Transect	NR20	*A. ligamentina*	adult	unk	95.9	59

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR20	*A. ligamentina*	adult	unk	96.3	51.8
Transect	NR20	*A. ligamentina*	adult	unk	96.6	60
Transect	NR20	*A. ligamentina*	adult	unk	98.5	64.1
Transect	NR20	*A. ligamentina*	adult	unk	98.7	63.9
Transect	NR20	*A. ligamentina*	adult	unk	98.8	61.6
Transect	NR20	*A. ligamentina*	adult	unk	98.8	70
Transect	NR20	*A. ligamentina*	adult	unk	98.9	68.7
Transect	NR20	*A. ligamentina*	adult	unk	99.1	61
Transect	NR20	*A. ligamentina*	adult	unk	100.6	63
Transect	NR20	*A. ligamentina*	adult	unk	100.9	60.8
Transect	NR20	*A. ligamentina*	adult	unk	100.9	64
Transect	NR20	*A. ligamentina*	adult	unk	101	64.9
Transect	NR20	*A. ligamentina*	adult	unk	101	66.6
Transect	NR20	*A. ligamentina*	adult	unk	101	67.5
Transect	NR20	*A. ligamentina*	adult	unk	101.5	60.2
Transect	NR20	*A. ligamentina*	adult	unk	102.9	62.8
Transect	NR20	*A. ligamentina*	adult	unk	103.1	63.8
Transect	NR20	*A. ligamentina*	adult	unk	103.8	64.7
Transect	NR20	*A. ligamentina*	adult	unk	103.9	67.2
Transect	NR20	*A. ligamentina*	adult	unk	104.5	62.3
Transect	NR20	*A. ligamentina*	adult	unk	104.9	62
Transect	NR20	*A. ligamentina*	adult	unk	105.9	63.7
Transect	NR20	*A. ligamentina*	adult	unk	106.9	64.9
Transect	NR20	*A. ligamentina*	adult	unk	107	66.2
Transect	NR20	*A. ligamentina*	adult	unk	107.5	65.3
Transect	NR20	*A. ligamentina*	adult	unk	108.1	69.1
Transect	NR20	*A. ligamentina*	adult	unk	108.3	75.8
Transect	NR20	*A. ligamentina*	adult	unk	108.4	62.2
Transect	NR20	*A. ligamentina*	adult	unk	108.8	72.5
Transect	NR20	*A. ligamentina*	adult	unk	109.1	71.5
Transect	NR20	*A. ligamentina*	adult	unk	110.7	66
Transect	NR20	*A. ligamentina*	adult	unk	110.8	60.1
Transect	NR20	*A. ligamentina*	adult	unk	110.8	71.5
Transect	NR20	*A. ligamentina*	adult	unk	111.3	72.9
Transect	NR20	*A. ligamentina*	adult	unk	112.3	69.6
Transect	NR20	*A. ligamentina*	adult	unk	113.1	65.8

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	NR20	*A. ligamentina*	adult	unk	113.4	69.6
Transect	NR20	*A. ligamentina*	adult	unk	113.4	74.7
Transect	NR20	*A. ligamentina*	adult	unk	114.9	75.1
Transect	NR20	*A. ligamentina*	adult	unk	115.2	63.6
Transect	NR20	*A. ligamentina*	adult	unk	115.2	72.1
Transect	NR20	*A. ligamentina*	adult	unk	115.3	73.5
Transect	NR20	*A. ligamentina*	adult	unk	118.1	76.8
Transect	NR20	*A. ligamentina*	adult	unk	118.3	75.3
Transect	NR20	*A. ligamentina*	adult	unk	119.5	72.3
Transect	NR20	*A. ligamentina*	adult	unk	119.6	71.5
Transect	NR20	*A. ligamentina*	adult	unk	123.4	73.8
Transect	NR20	*A. ligamentina*	adult	unk	127.6	77.8
Transect	NR20	*A. ligamentina*	adult	unk	–	52.8
Transect	NR20	*C. tuberculata*	adult	unk	59.9	53.8
Transect	NR20	*C. tuberculata*	adult	unk	76.8	60.7
Transect	NR20	*C. tuberculata*	adult	unk	81.8	65.2
Transect	NR20	*C. tuberculata*	adult	unk	88.5	74.5
Transect	NR20	*C. tuberculata*	adult	unk	102.9	83.6
Transect	Stonecliff	*A. ligamentina*	adult	unk	78	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	86	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	86	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	87	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	87	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	94	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	95	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	96	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	96	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	98	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	100	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	100	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	102	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	103	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	105	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	107	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	109	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	110	–

Table 10 (continued). Mussel capture data.

Type	Site	Species	Life Stage	Sex	Length (mm)	Height (mm)
Transect	Stonecliff	*A. ligamentina*	adult	unk	115	–
Transect	Stonecliff	*A. ligamentina*	adult	unk	125	–

Appendix B: Transect Substrate Mussel Capture Matrix

Table 11. Transect substrate mussel capture matrix.

Site #	Data	0–5	5–10	10–15	15–20	20–25	25–30	30–35	35–40	40–45	45–50	50–55	55–60
Meadow Cr.	Substrate	SA, CW, G	G, SA, C	G, SA, C	G, SA, C	G, SA, C	BR, G, SA	C, G, SA	C, G, SA	C, G, SA	BR	BR, G, SA	BR, G, SA
Meadow Cr.	Mussels	0	12	50	96	45	8	33	22	5	4	0	0
NR03	Substrate	B, C, SIL	B, G, SA	G, C, SA	C, G, SA	C, G, SA	C, G, SA	C, G, SA	C, G, SA	C, G, SA	C, G, SA	C, G, SA	C, G, SA
NR03	Mussels	0	3	20	69	34	32	18	8	8	32	17	5
NR04	Substrate	B, C, SA	B, C, SA	B, C, SA	B, C, SA	B, C, SA	B, C, SA	B, C, SIL	B, C, SIL	B, C, SIL	B, C, SIL	B, C, SIL	B, C, SIL
NR04	Mussels	0	12	6	2	5	2	4	1	0	0	5	10
NR05	Substrate	B, C, SA	B, G, SA	B, SA, G	B, SA, C	B, SA, C	B, C, SA	B, C, SA	B, G, SA	B, G, SA	B, C, SA	C, SA, B	B, C, SA
NR05	Mussels	0	2	19	14	5	2	0	2	1	1	2	1
NR07	Substrate	C, G, SA	C, G, SI	C, G, SA	G, B, SA	B, C, SA	B, C, SA	C, G, SA	C, G, SA	C, G, SA	B, C, G	B, C, G	C, G, SA
NR07	Mussels	31	12	8	19	11	31	4	1	0	0	0	0
NR08	Substrate	B, G, SA	B, C, G	B, C, G	B, G, SIL	B, C, SA	B, C, SIL	B, C, SIL	B, C, SIL	B, C, SIL	G, C, B	G, BR, C	BR
NR08	Mussels	0	0	3	2	5	1	0	4	0	6	1	0
NR10	Substrate	C, SIL	C, SIL	C, SA, SIL	B, C, SIL	C, B, SIL	B, C, SIL	C, SIL, SA	C, G, SA	C, SA, BR	BR	BR	BR
NR10	Mussels	0	0	4	2	2	0	0	0	0	0	0	0
NR12	Substrate	BR, SIL	BR, C, SIL	B, C, G	B, C, SA	B, C, G	B, C, G	C, G, B	C, G, B	C, G, B	G, C	G, C, B	B, G, C
NR12	Mussels	0	0	1	0	5	0	2	0	0	1	2	0

* SIL=Silt; SA=Sand; G=Gravel; C=Cobble; BR=Bedrock; CW=Course Woody Debris, V=Aquatic Vegetation

Table 11 (continued). Transect substrate mussel capture matrix.

Site #	Data	0–5	5–10	10–15	15–20	20–25	25–30	30–35	35–40	40–45	45–50	50–55	55–60
NR14	Substrate	C, SIL	C, SIL	C, SIL	C, SIL	C, SIL	C, SIL	BR, SIL	BR, SIL	G, SA	G, SA	G, SA	G, SA
NR14	Mussels	0	0	0	0	1	0	1	0	0	0	2	3
Stonecliff	Substrate	C, SA, SIL	C, SA, G	C, SA, G	C, SA, G	NA	C, SA, G	C, G, SA	C, G, SA	C, G, SA	C, G, SA	NA	NA
Stonecliff	Mussels	2	6	1	4	0	3	1	1	2	0	0	0
NR17	Substrate	C, G, SIL	C, SIL, G	SIL, C, G	SIL, C, G	SIL, C, G	SIL, C, G	SIL, C, G	SIL, C, G	G, C, SA	G, C, SA	G, C, SA	G, C, SA
NR17	Mussels	0	1	1	3	0	0	0	3	20	0	9	9
NR18	Substrate	B, G, SIL	B, G, SIL	B, C, SIL	B, C, SIL	B, G, C	B, C, G	B, G	B, G	B, G	B	B, G, SA	B, G, SA
NR18	Mussels	0	2	3	2	1	0	0	1	0	0	1	0
Brooklyn	Substrate	G, C, SA	G, C, B	B, C, G	G, SA, B	B, SA, G	C, B, G	C, G, SA	C, G, SA	B, C, G	B, C, SIL	B, SIL, C	B, C, SIL
Brooklyn	Mussels	4	17	7	15	14	17	10	9	9	0	9	18
NR20	Substrate	C, SIL, G	C, SIL, G	B, C, SIL	B, C, SIL	B, C, SIL	B, C, SIL	B, C, SA	B, C, SA	B, C, SA	B, C, SA	B, C, SA	B, C, SA
NR20	Mussels	0	0	8	7	6	6	19	13	4	10	2	0
Cunard	Substrate	SIL, B, BR	SIL, V	SIL, V	SIL, V	B, G, SIL	B, G, SIL	B, G, SIL	B, G, SIL	B, G, SIL	B, G, SIL	B, G, SIL	B, G, SA
Cunard	Mussels	0	0	1	0	2	3	1	0	0	0	1	1

* SIL=Silt; SA=Sand; G=Gravel; C=Cobble; BR=Bedrock; CW=Course Woody Debris, V=Aquatic Vegetation

Appendix C: Transect Figures

Figures 9 to 23 show the mussel transects from each site.

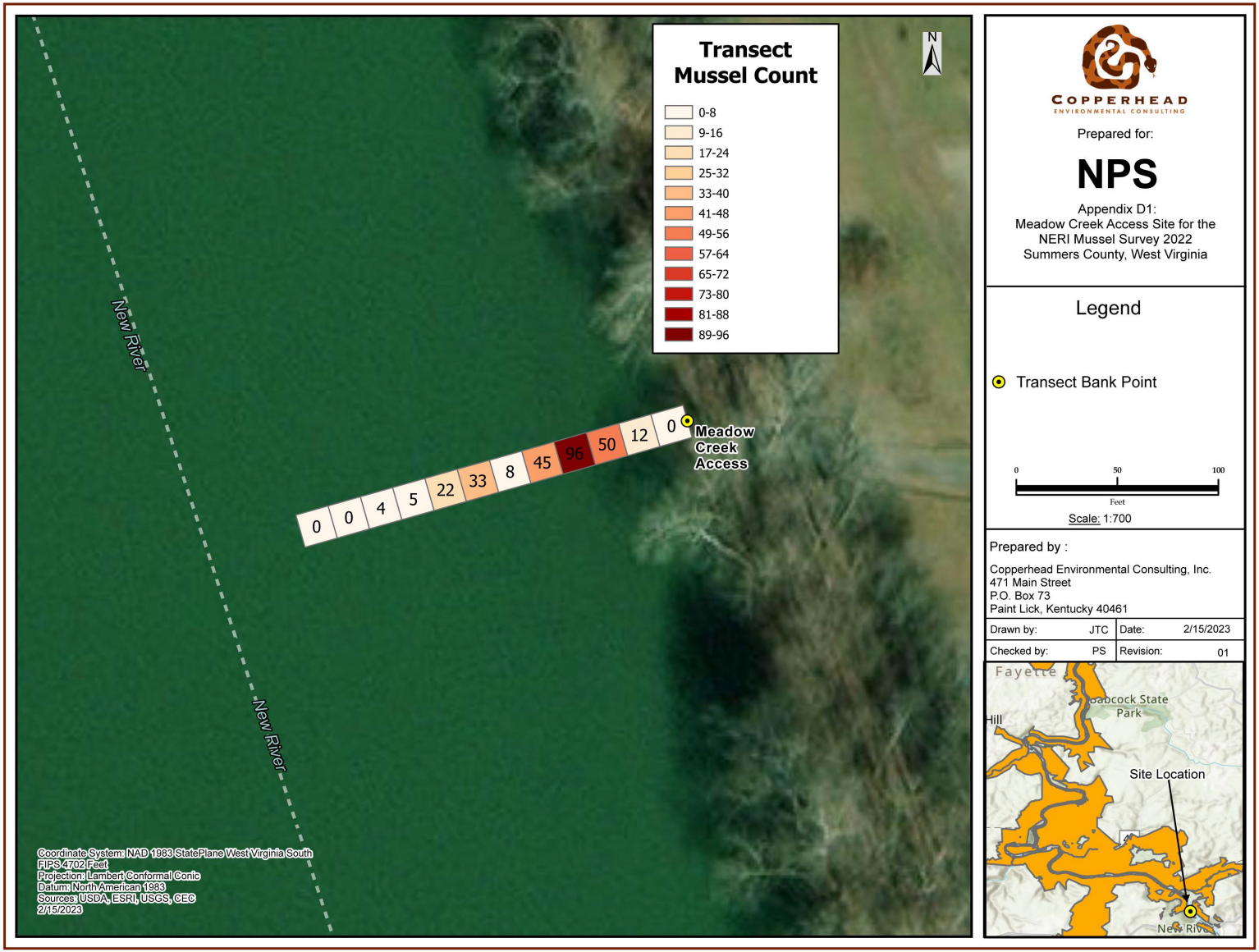


Figure 9. Meadow Creek Access Site for the NERI Mussel Survey 2022.

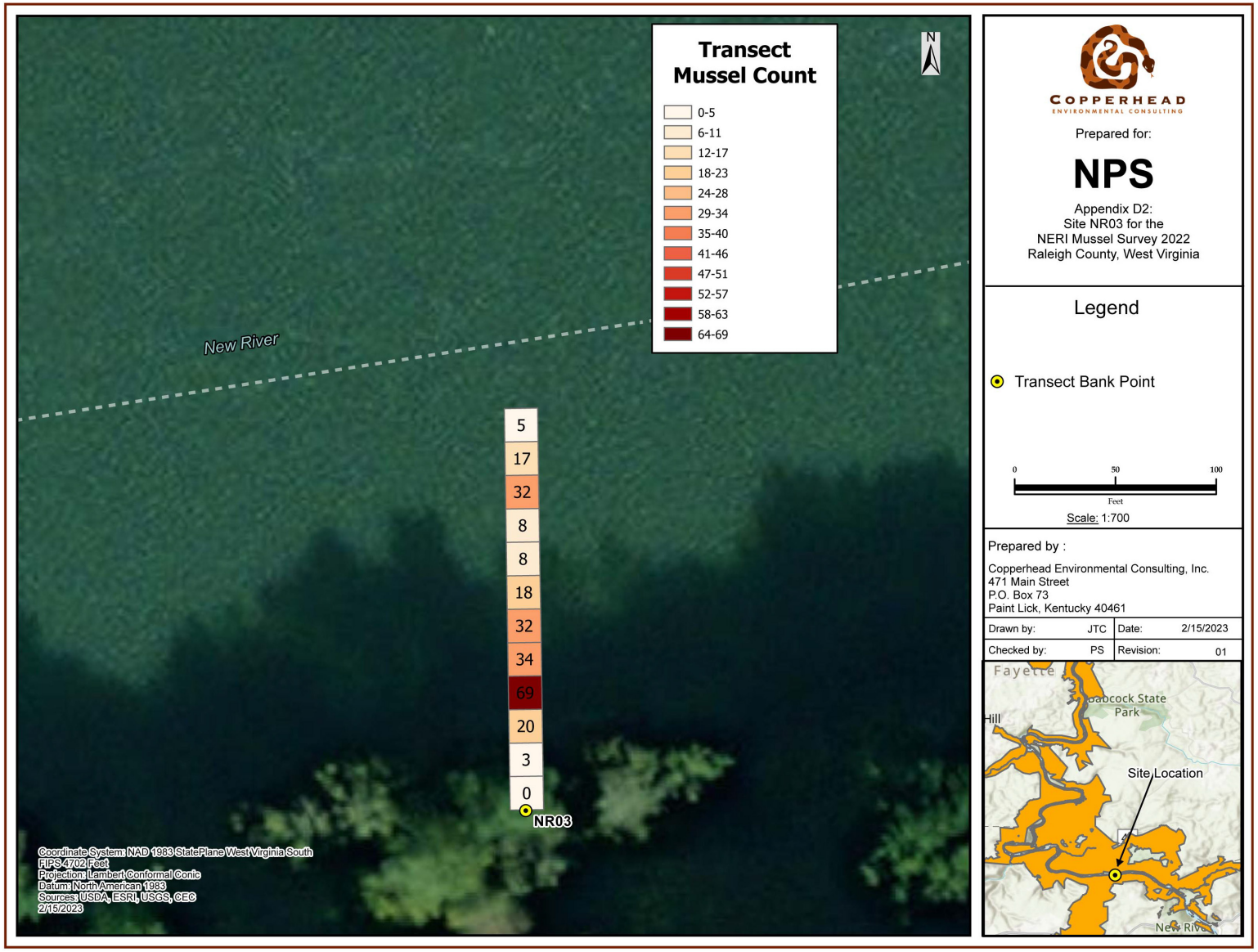


Figure 10. Site NR03 for the NERI Mussel Survey 2022.

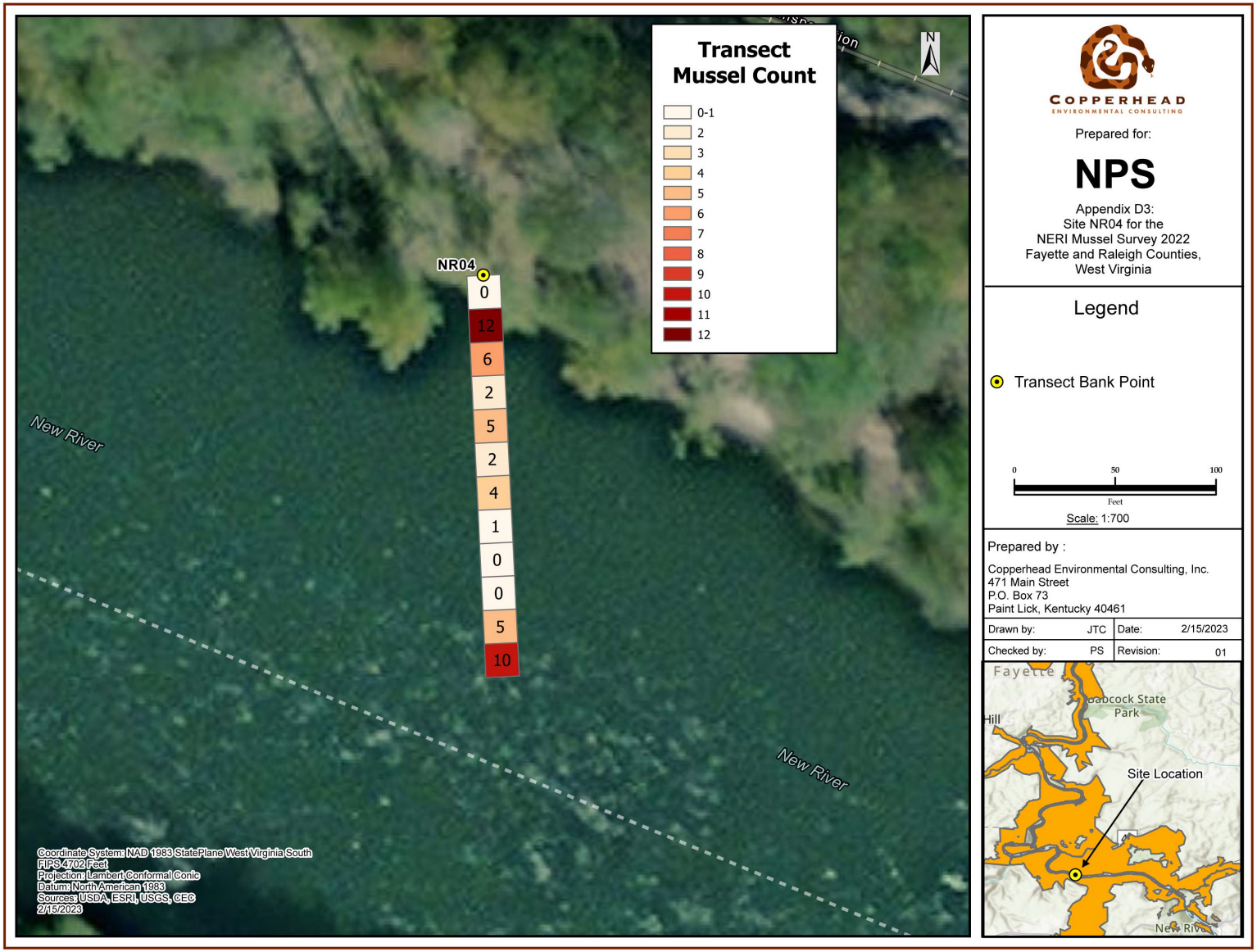


Figure 11. Site NR04 for the NERI Mussel Survey 2022.

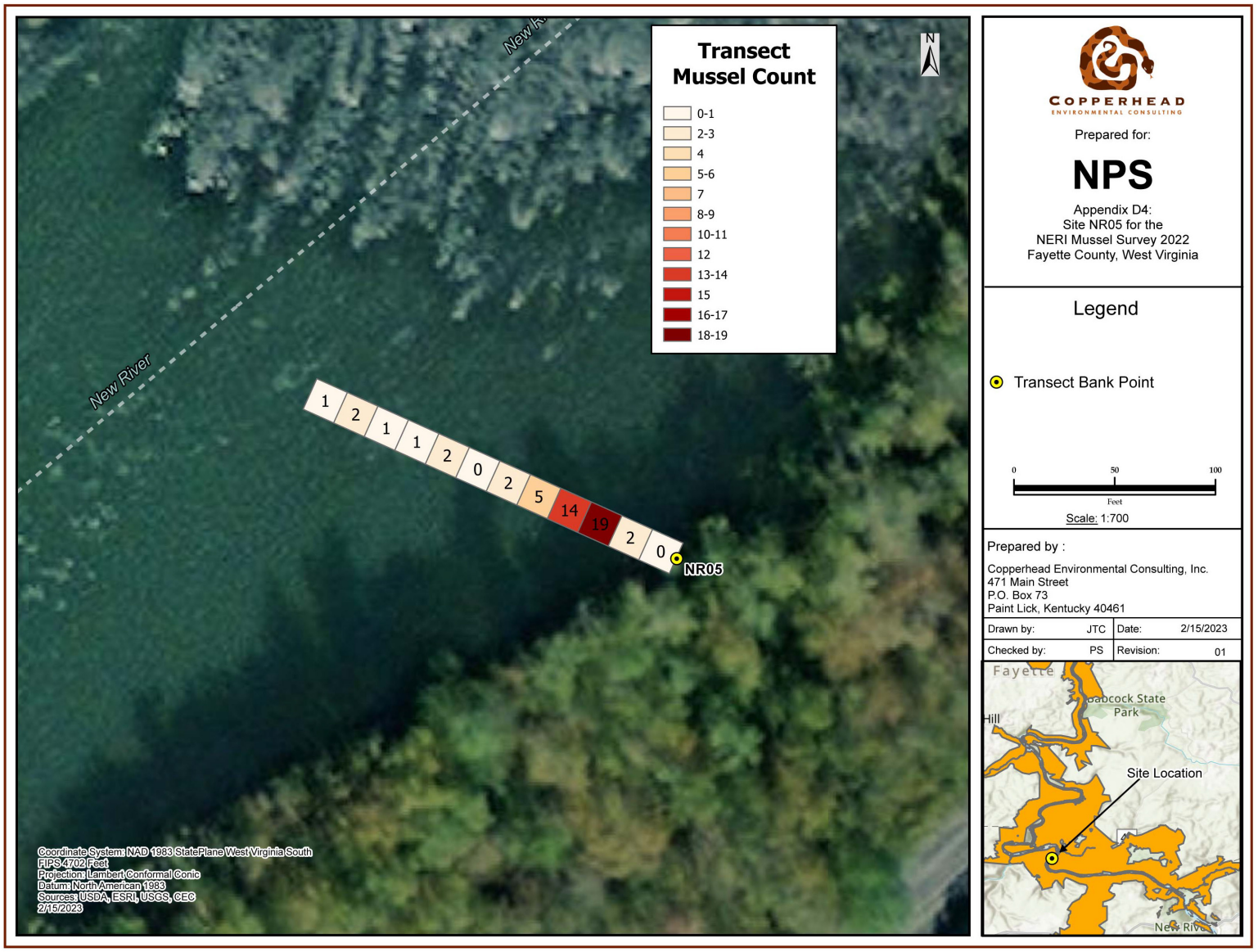


Figure 12. Site NR05 for the NERI Mussel Survey 2022.

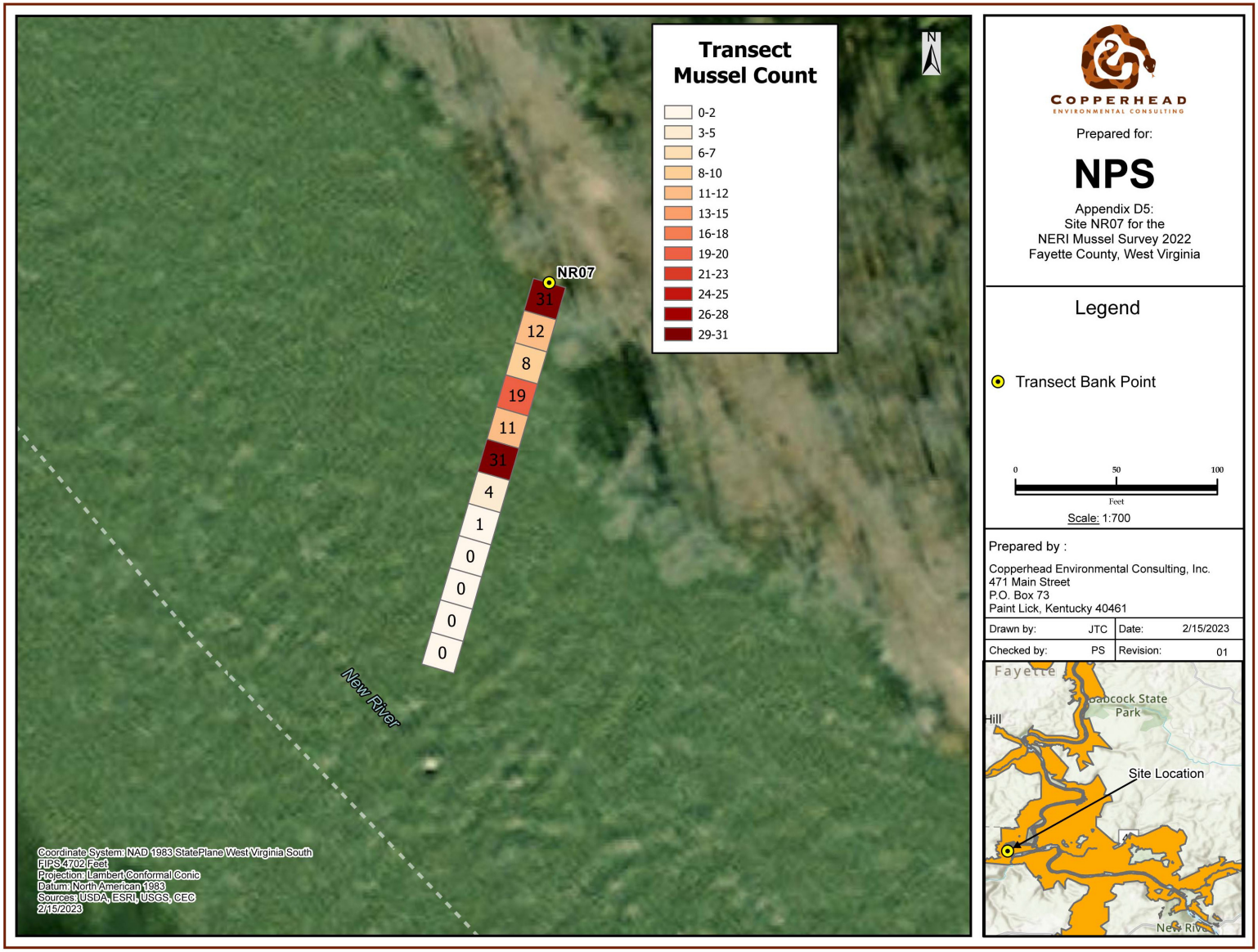


Figure 13. Site NR07 for the NERI Mussel Survey 2022.

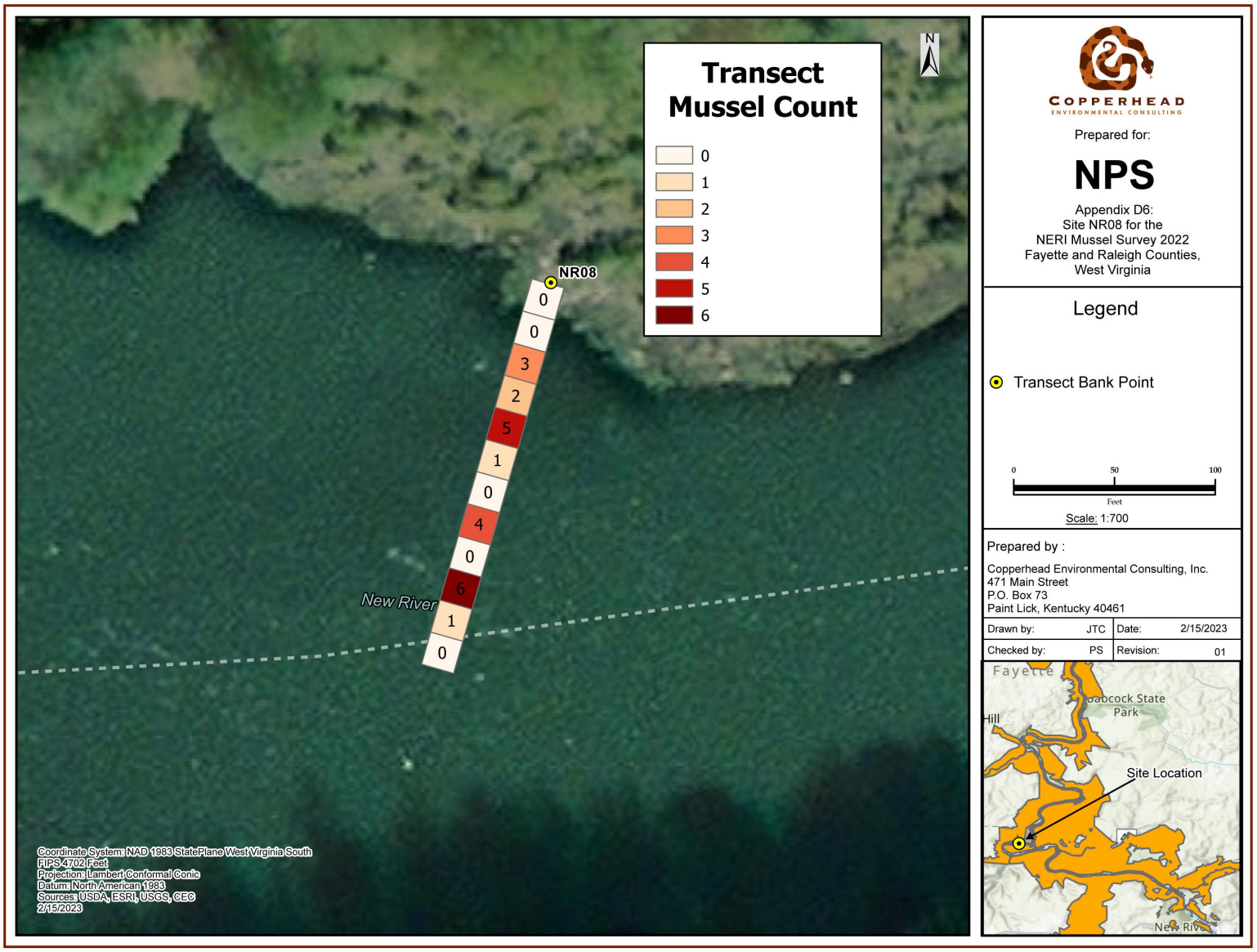


Figure 14. Site NR08 for the NERI Mussel Survey 2022.

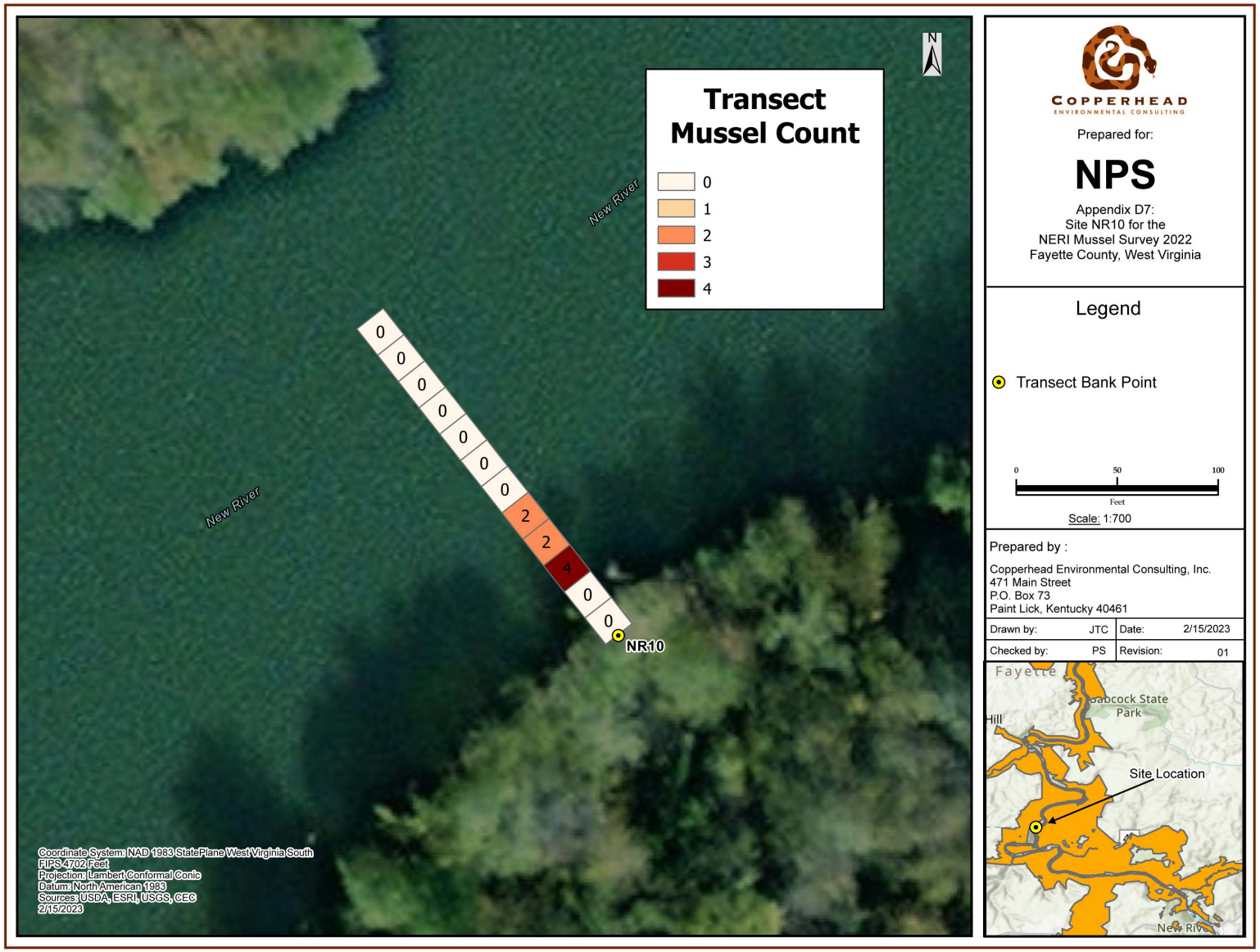


Figure 15. Site NR10 for the NERI Mussel Survey 2022.

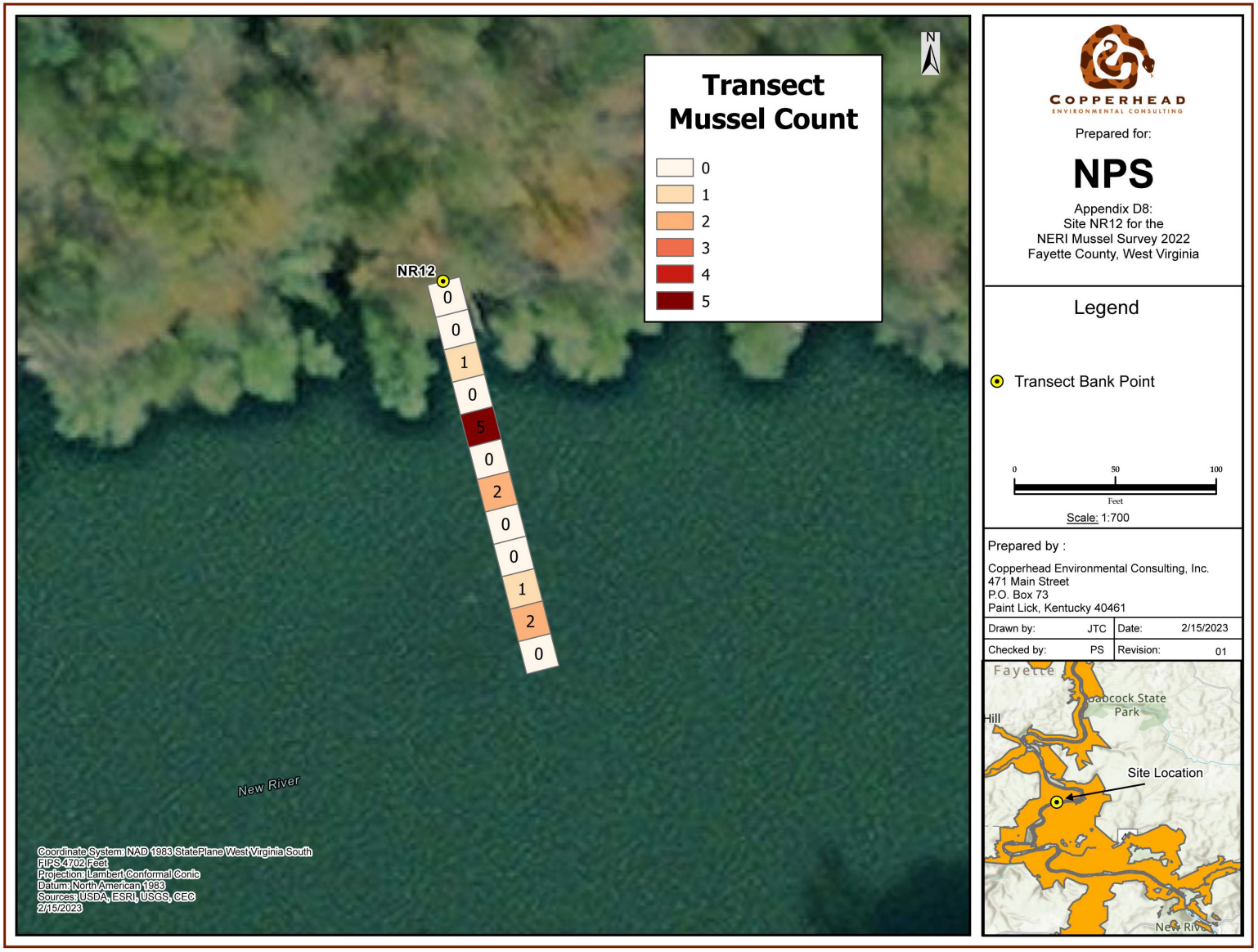


Figure 16. Site NR12 for the NERI Mussel Survey 2022.

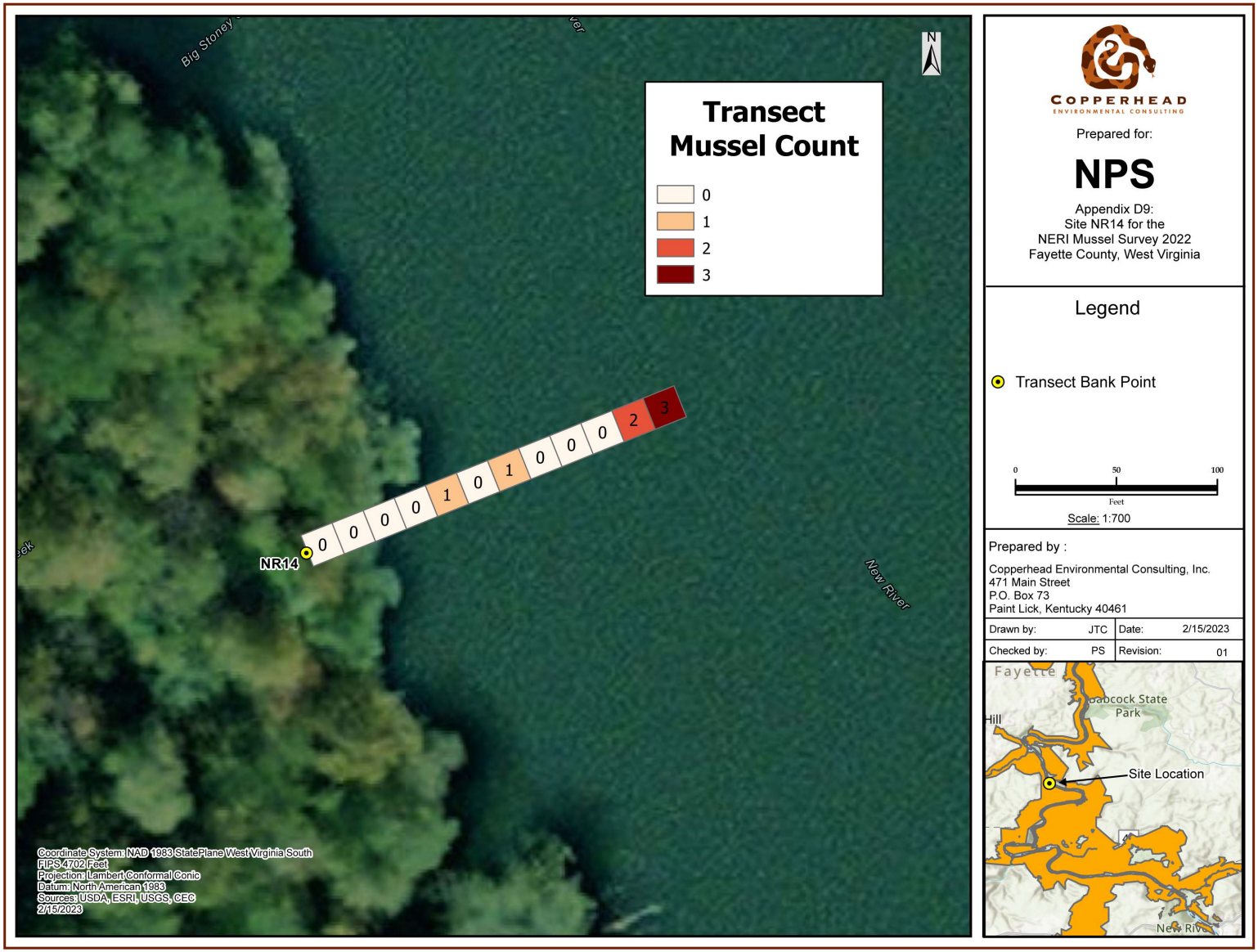


Figure 17. Site NR14 for the NERI Mussel Survey 2022.

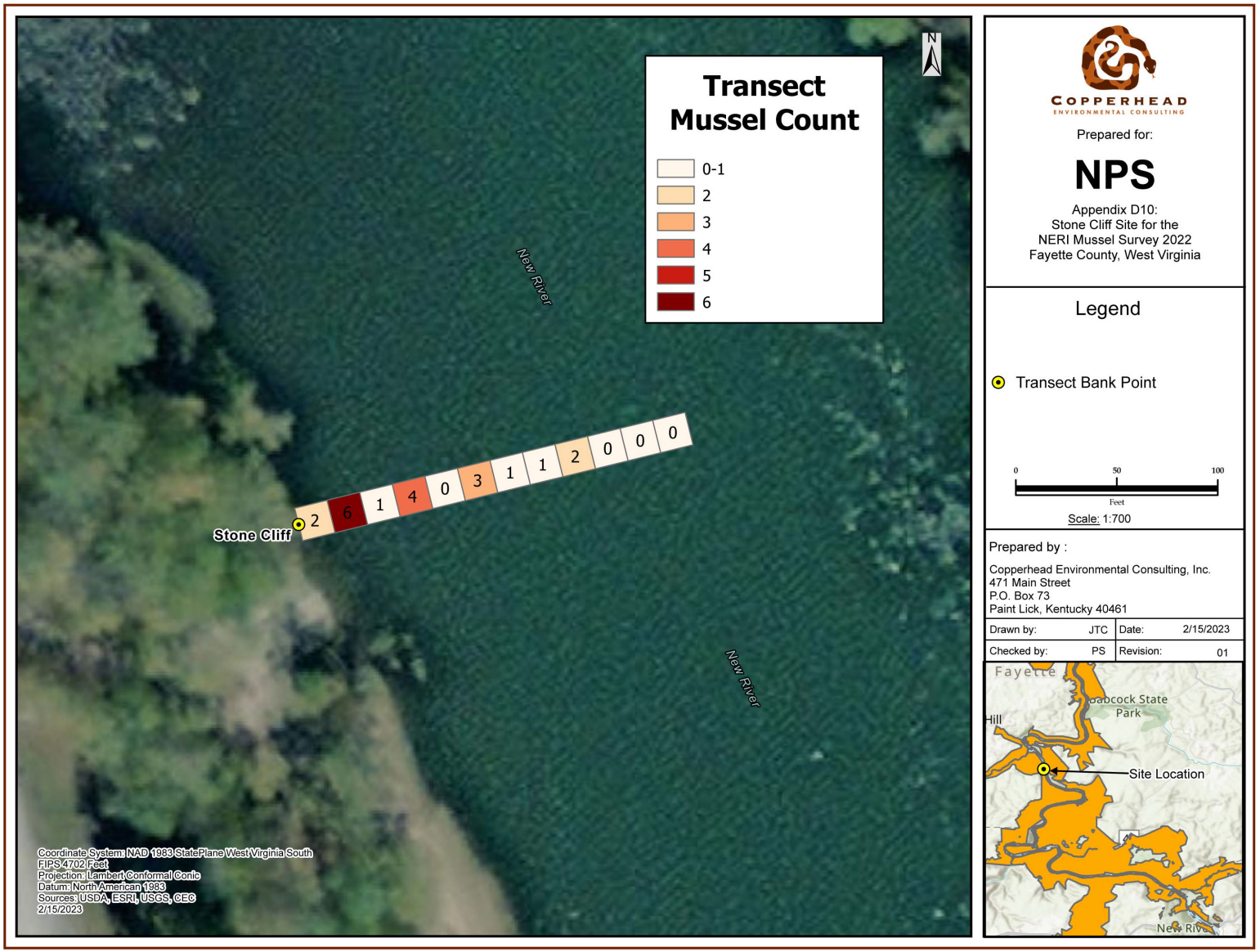


Figure 18. Stone Cliff site for the NERI Mussel Survey 2022.

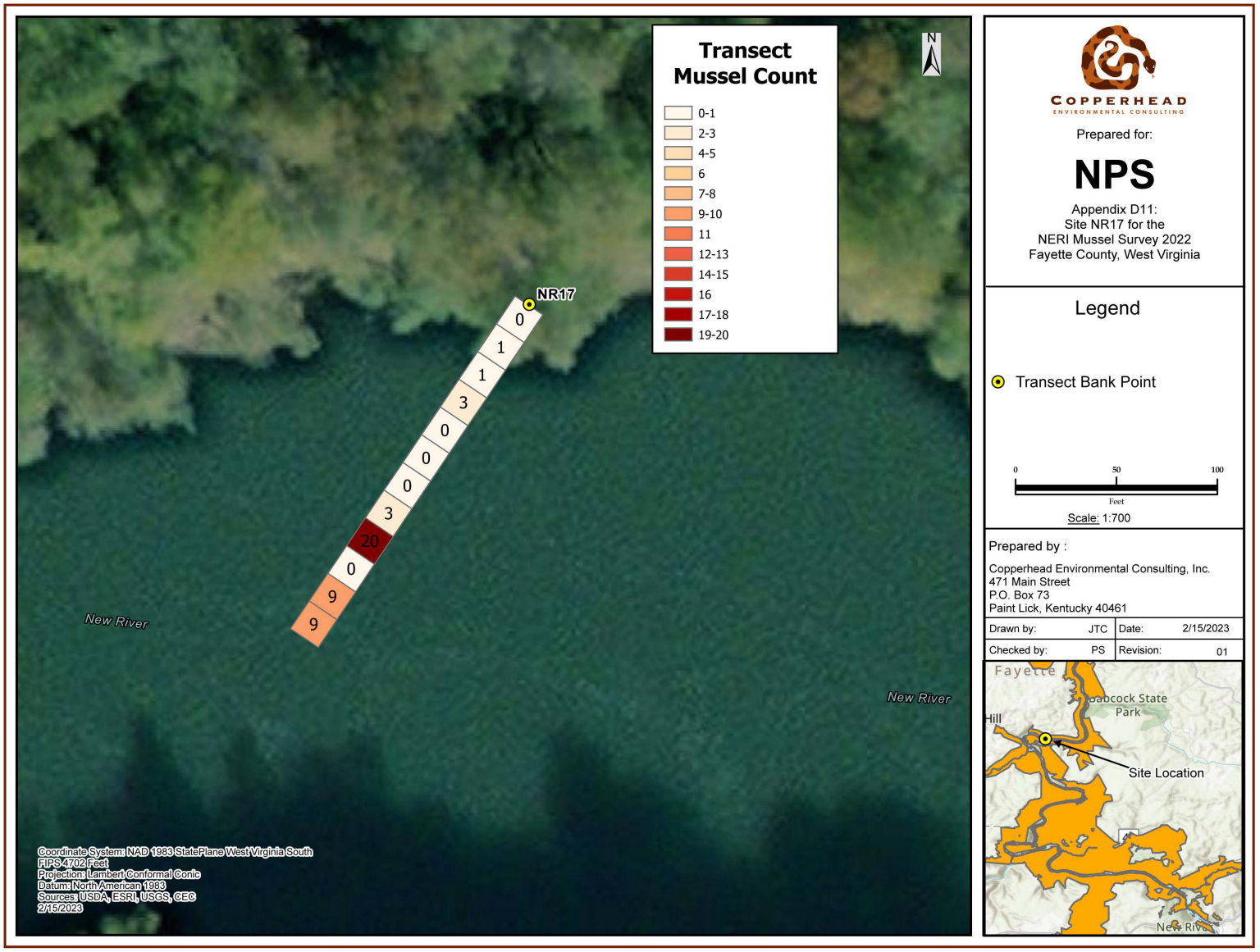


Figure 19. Site NR17 for the NERI Mussel Survey 2022.

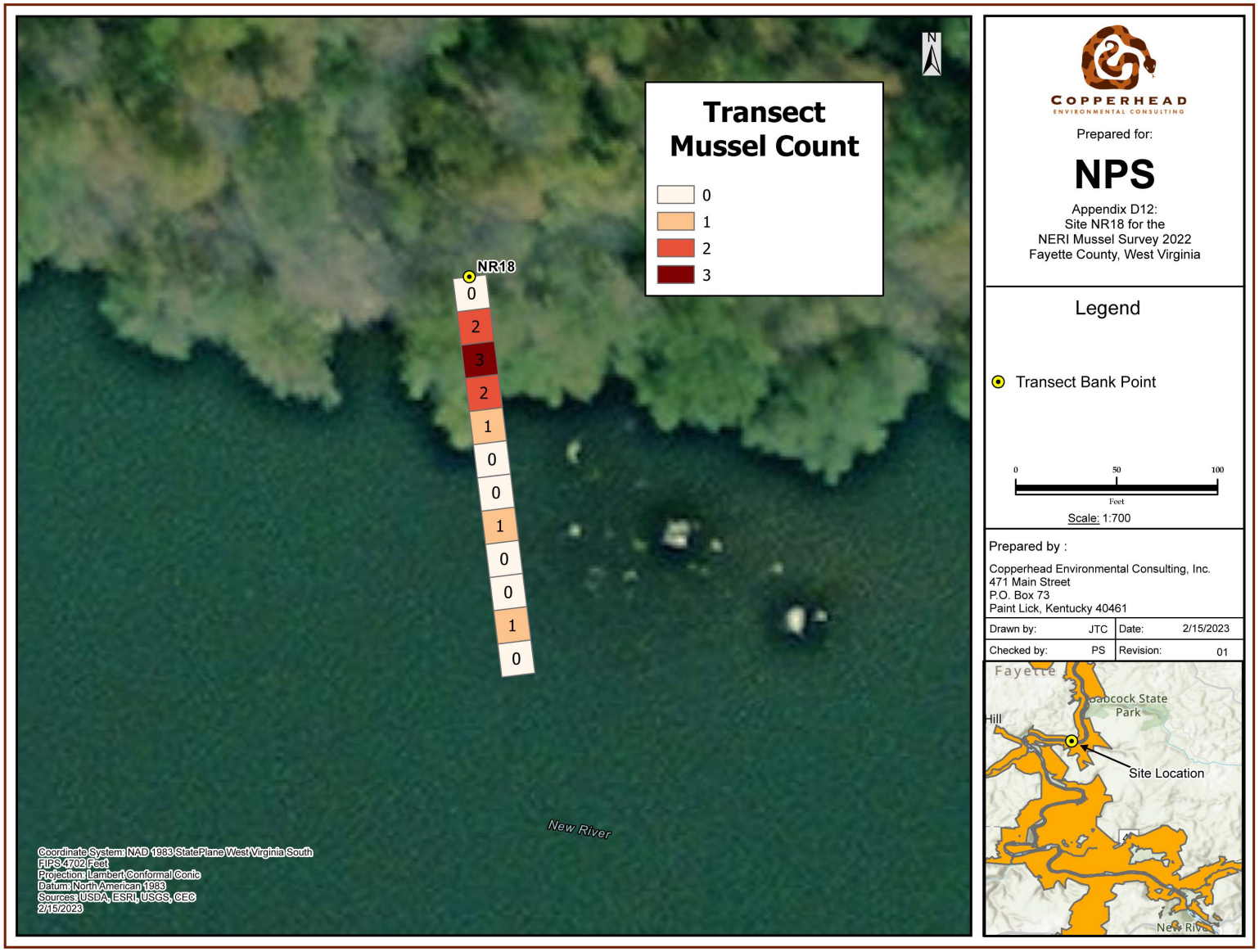


Figure 20. Site NR18 for the NERI Mussel Survey 2022.

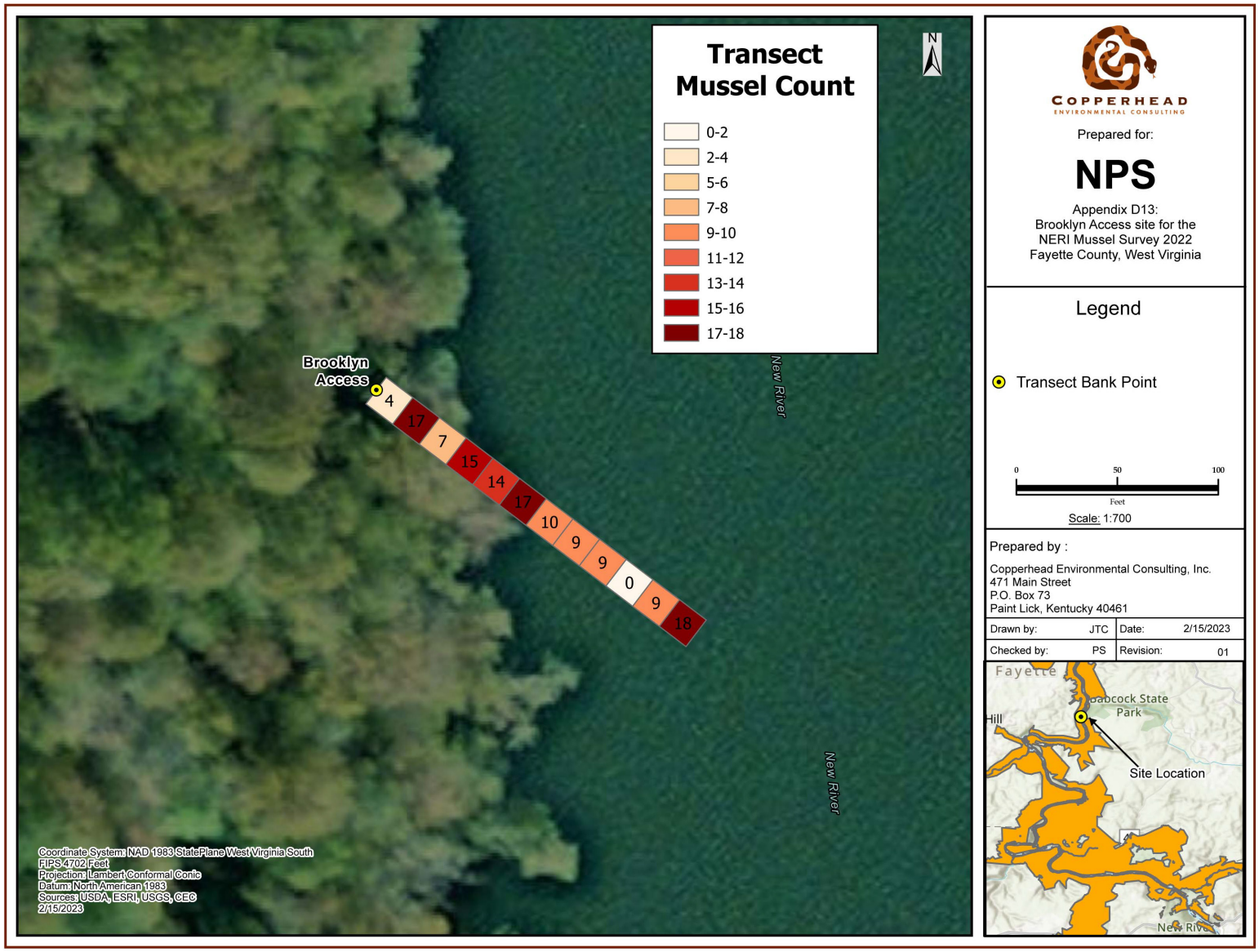


Figure 21. Brooklyn Access site for the NERI Mussel Survey 2022.

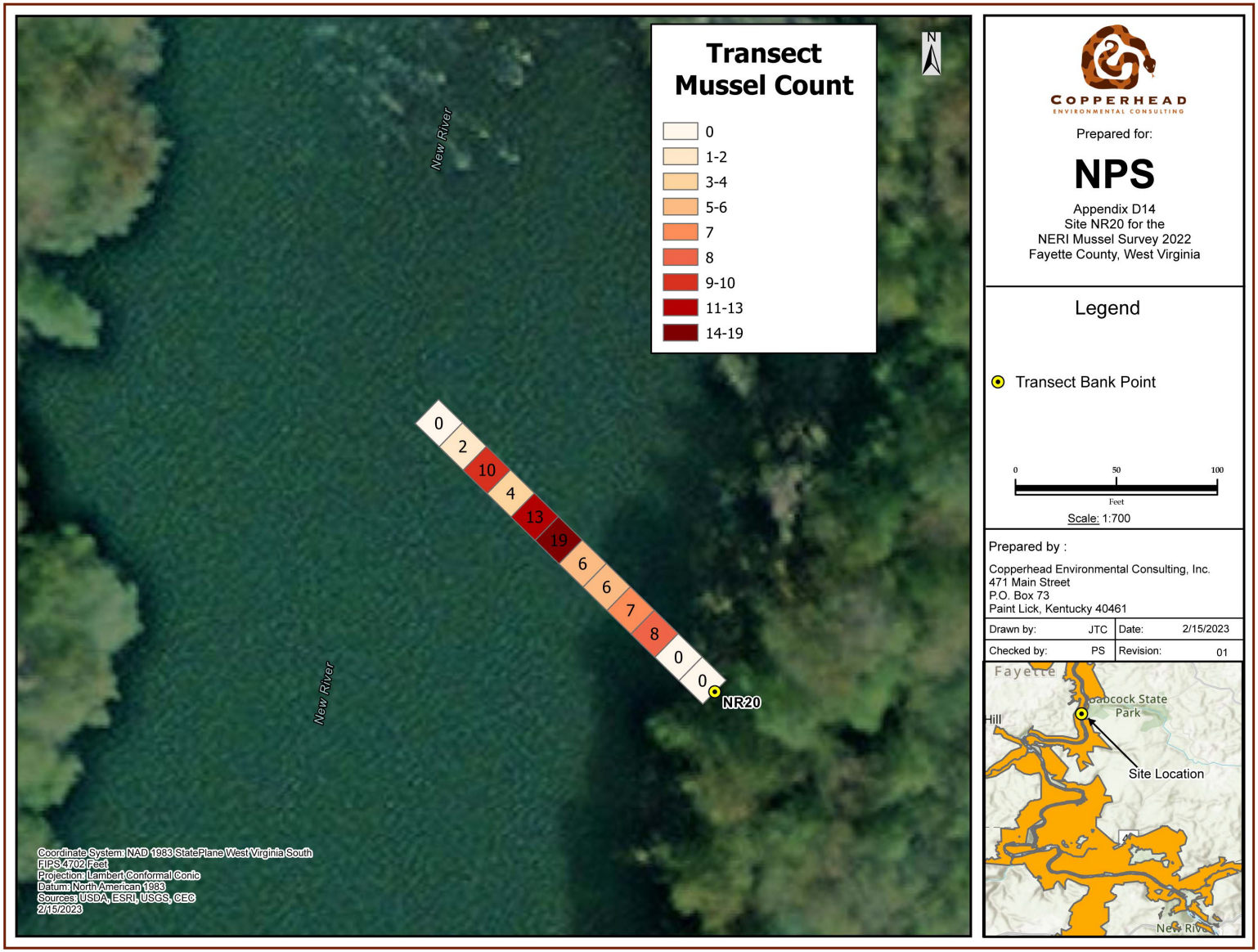


Figure 22. Site NR20 for the NERI Mussel Survey 2022.

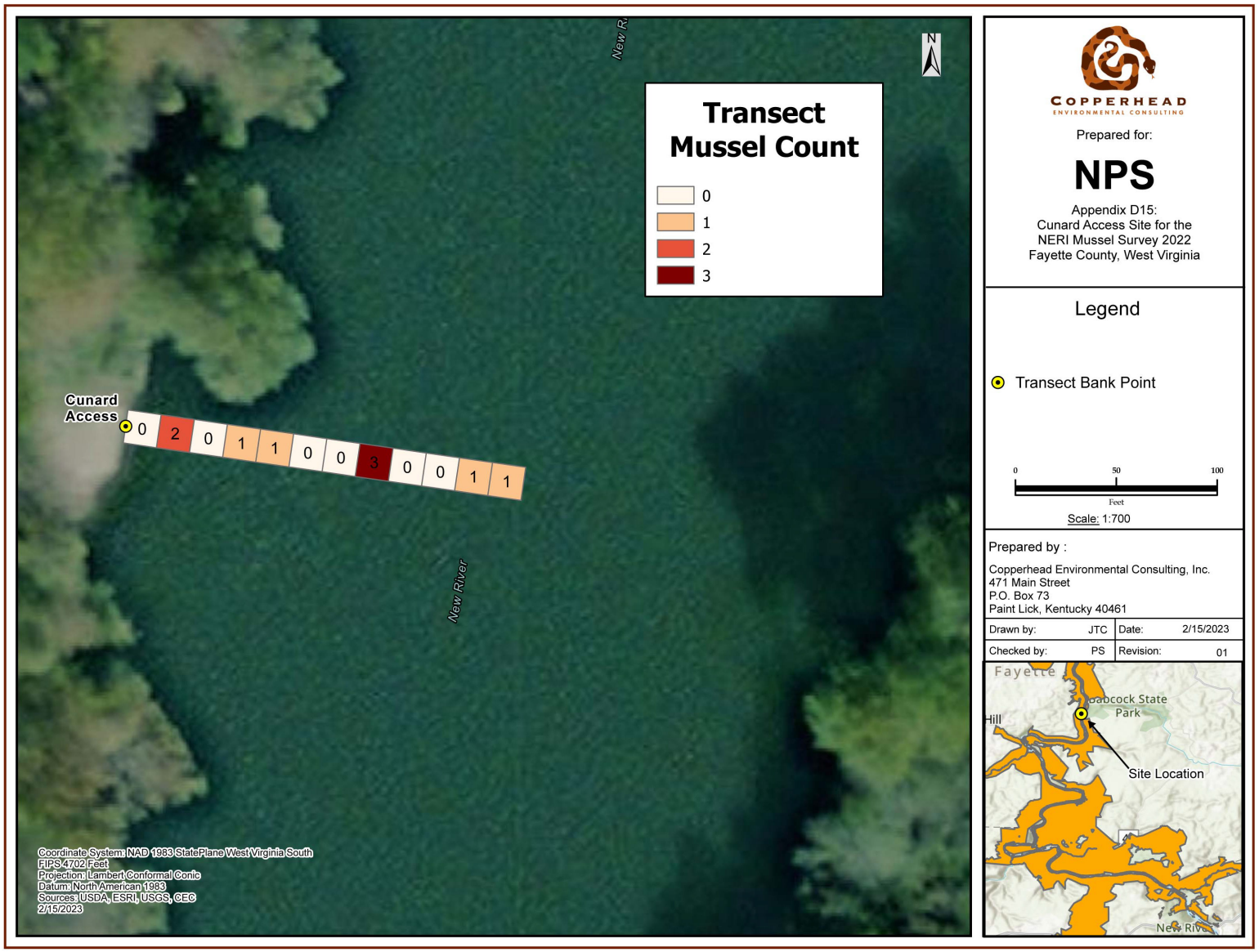


Figure 23. Cunard Access site for the NERI Mussel Survey 2022.

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS 619/191601, 637/191601, 600/191601, December 2023

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