

Amphibian Monitoring in the Great Lakes Inventory and Monitoring Network: 2015 Annual Report

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The National Park Service Great Lakes Inventory and Monitoring Network (Network) began implementing an amphibian monitoring protocol at national park units across the Great Lakes region based on automated acoustic monitoring in 2013 (Casper and Beever 2013). In 2013 three parks participated by selecting 10 sites and deploying Automated Recording Systems (ARS) at each site per the approved protocol (*op. cit.*): Indiana Dunes National Park (INDU), Pictured Rocks National Lakeshore (PIRO), and Sleeping Bear Dunes National Lakeshore (SLBE). In 2014 two additional parks participated with 10 sites each: Apostle Islands National Lakeshore (APIS), and Mississippi National River and Recreation Area (MISS). In 2015 two additional parks participated with 10 sites at Isle Royale National Park (ISRO), and 6 sites at Grand Portage National Monument (GRPO). This report summarizes 2015 results for the program. In addition, the protocol was revised in 2016 and Version 2.0 is now available from the Network office (Casper *et al.* 2016).

1. Methods

1.1 Site Selection and Equipment Deployment

ARS (mostly SM2+ model Song Meters manufactured by Wildlife Acoustics, Inc., 970 Sudbury Road, Concord, MA 01742-4939) and pre-programmed SD cards were provided by the Network to all seven parks in early 2015. All parks repeated the study at the pre-selected permanent sampling sites, with the exception of MISS, which selected some alternates for sites that had been affected by flooding. For the two new Parks (GRPO, ISRO), permanent sites were selected using the same process (a stratified random design; Casper and Beever 2013). ARS were tested for quality control by the Network or the participating park before field deployment, and each new site at GRPO and ISRO was ground truthed by the principle investigator (GC) for qualifying as suitable habitat and to assign its wetland category (temporary, semi-permanent, permanent). ARS were then deployed per the protocol. At ISRO site selection considered

logistics of island access. At GRPO site selection was limited within the narrow park corridor, where amphibian breeding habitat is mostly outside of park boundaries. In all parks, Song Meters were field checked mid-season to confirm continuing operation by park staff, and removed after the calling season. Upon return of ARS to the office, SD cards were removed, backed up, and sent to the Network for archiving and analyses. Each park will inspect and test ARS equipment again prior to redeployment in 2016, with repairs and replacements as needed. Forms detailing ARS deployment and retrieval, as well as subsequent equipment checks and retrieval, are on file with each park and the Network office.

1.2 Recognizer Development

We continued developing recognizers utilizing species recordings obtained from ARS deployed on this and other western Great Lakes area projects. This process and results are described in the revised protocol version 2.0 (Casper *et al.* 2016). Table 1 provides current recognizer parameters.

1.3 Data Analysis

Digital audio recordings are site, time and date stamped in file names. For each site we received varying numbers of samples (a sample is a 5-minute digital audio recording), along with a TXT file containing date and time stamped temperature logger data. These data are summarized in Table 2 and Appendix A. Temperature logger data included data from both internal and external temperature sensors in 2015, but in the new protocol (Casper *et al.* 2016) water temperature loggers are optional. For 2015 we performed automated analyses of all post-sunset samples from each site, from the date any frog was first detected through July 31 (per Casper *et al.* 2016). Automated analyses utilized recognizers for 12 species: Blanchard's Cricket Frog (*Acris blanchardi*), Spring Peeper (*Pseudacris crucifer*), Chorus Frogs (*Pseudacris maculata* and *P. triseriata* combined), Treefrog (*Hyla chrysoscelis* and *H. versicolor* combined), American Toad (*Anaxyrus americanus*), Northern Leopard Frog (*Lithobates pipiens*), Pickerel Frog (*Lithobates palustris*), Green Frog (*Lithobates clamitans*), American Bullfrog (*Lithobates catesbeianus*), and Wood Frog (*Lithobates sylvaticus*). Recognizer specifications and sample filtering routines are detailed in Casper *et al.* (2016). We then subset 30 samples from each site for manual analyses (per Casper *et al.* 2016), which served to detect the remaining 2 species: Fowler's Toad (*Anaxyrus fowleri*), and Mink Frog (*Lithobates septentrionalis*).

2. Results

2.1 Site Selection, Equipment Deployment and Retrieval, Data Collection

These data forms are archived at each park and the Network office. Equipment and data retrieval are handled by park and Network staff. Data contained on SD cards from each ARS unit were delivered to the investigators and examined for completeness, including scanning of files to determine "empty" files indicating equipment failures (see Casper *et al.* 2016 for procedures). Results are presented in Table 2. Data collection success is presented in Table 6 with sampling success rates. Since deployment dates vary each year with phenology and staff

logistics, sampling start dates are not static. Once deployed sampling is to continue through July 31 to allow for analyses of late calling species. The expected number of samples is calculated from the actual deployment date of each unit through July 31, but see Table 2 for actual sampling dates accounting for equipment glitches. In 2015, all parks were recording 13 samples per day (1200h to 0000h), while PIRO Song Meters were recording 16 samples per day (1200h to 0300h). In future, programming for all parks will continue through 0300h to increase detection rates (per Casper *et al.* 2016).

2.2 Recognizer File Development

Casper *et al.* (2016) discuss the status of recognizer development, and species specific sample filtering criteria utilized both prior to running data through recognizers, and on recognizer output, to reduce false presences and false absences in the results, as well as proofing steps which eliminate false presences in analyses (Table 1). Currently 2 species recognizers remain in development: Fowler's Toad and Mink Frog. We recently received Fowler's Toad training files (a species yet to be recorded in Network parks) and are optimistic that a recognizer can be completed in 2017. Mink Frog recognizer development remains problematic due to overlap of acoustic characteristics with Green Frog. Currently Mink Frogs are detected reliably only in manual scans, but we continue to work on recognizer development for this species. Treefrog and Chorus frog recognizers are not species specific, but species in these pairs are identified in recognizer output proofing, in manual scans, and in some instances by geography (see Casper *et al.* 2016).

2.3 Data Analysis

Species detected at each site by each method are detailed in Table 7.

2.3.1 Species With Recognizers

Table 3 summarizes auto-detections. Appendix A provides raw recognizer outputs with results of filtering steps.

2.3.2 False Presence Rates

False presence rates for the automated recognizer detections are presented in Tables 8-11.

2.3.3 False Absences in Occupancy With Recognizers

We compared occupancy determinations from manual scans (30 samples for each site) with recognizer results and calculated false absence rates for species with recognizers developed. This assumes there are no false presences in the manual scans, of which we are confident as all first and questionable detections for these species were verified by an independent observer. Note that the 30 samples scanned manually are a subset of the (usually) much larger number of samples scanned by the recognizers. The summaries following are derived from Table 7.

Wood Frog: This species was detected at 18 sites by both methods combined. At 3 sites it was detected only by manual scanning, and at 15 sites by both methods (occupancy false absence rate = 0.167). At ISRO05, ISRO07, and ISRO09 ARS sampling began too late in the season for this

species to have been validly surveyed. Occupancy of the remaining sites should be evaluated through occupancy modeling.

Spring Peeper: This species was detected at 53 sites by both methods combined. At 1 site this species was detected only by manual scanning, and at 52 sites by both methods (occupancy false absence rate = 0.019). Spring Peeper was absent only from MISS sites (N=10), where it is considered to be truly absent.

Chorus Frog complex: This recognizer does not distinguish between Boreal and Western chorus frog species, but they are not sympatric so evaluation of recognizer effectiveness is based on geographic identification presented below.

Western Chorus Frog: Potentially present only at INDU and SLBE. This species was detected at 8 INDU sites, all by both methods combined (occupancy false absence rate = 0.000). It was absent from 2 INDU and all SLBE sites (N=10), and is considered out of range at the remaining parks.

Boreal Chorus Frog: Potentially present at all parks other than INDU and SLBE. This species was detected at 1 ISRO and 2 MISS sites, all by both methods combined (occupancy false absence rate = 0.000). At ISRO05, ISRO07, and ISRO09 ARS sampling began too late in the season for this species to have been validly surveyed. It was absent from 37 sites surveyed at APIS, GRPO, ISRO, MISS and PIRO, and is considered out of range at the remaining parks.

American Toad: This species was detected at 49 sites by both methods combined. At 4 sites it was detected only by manual scanning, at 7 sites only by automated scanning, and at the remaining sites by both methods (recognizer occupancy false absence rate = 0.082; manual false absence rate = 0.143). American Toad was absent from 14 sites where valid surveys were completed, and presence should be evaluated through occupancy modeling.

Northern Leopard Frog: This species was detected at 14 sites by both methods combined. At 5 sites it was detected only by manual scanning, and at the remaining sites by both methods (occupancy false absence rate = 0.357). At ISRO05, ISRO07, and ISRO09 ARS sampling began too late in the season for this species to have been validly surveyed. It was absent from 46 sites where valid surveys were completed, and presence should be evaluated through occupancy modeling.

Pickereel Frog: This species was not detected at any sites by either method. At this time it appears to be absent from all parks. The recognizer was developed using data from Grant and Sauk counties, Wisconsin, and should be further tested on additional known sites.

Treefrog complex: This recognizer does not distinguish between Gray Treefrog and Cope's Gray Treefrog species, which are sympatric wherever Cope's Gray Treefrog occurs (APIS, INDU, and

MISS confirmed in 2015; and potentially PIRO and SLBE). Therefore, only manual surveys can be used to determine species-level occupancy rates in most parks. For GRPO and ISRO Gray Treefrog is the only species potentially present. The species complex was detected at 43 sites by both methods combined. At 7 sites they were detected only by manual scanning (MISS01 and MISS10 had only Cope's), and at the remaining sites by both methods (occupancy false absence rate = 0.163). They were absent from 20 sites where valid surveys were completed, and presence should be evaluated through occupancy modeling.

Blanchard's Cricket Frog: This species is potentially present only at INDU and MISS. It was detected at 1 site (MISS07) by both methods combined (occupancy false absence rate = 0.000). It was absent from 19 INDU and MISS sites where valid surveys were completed, and presence should be evaluated through occupancy modeling.

Green Frog: This species was detected at 51 sites by both methods combined. At 4 sites it was detected only by manual scanning, at 2 sites only by automated scanning, and at the remaining sites by both methods (recognizer occupancy false absence rate = 0.078; manual false absence rate = 0.039). Green Frog was absent from 12 sites where valid surveys were completed, and presence should be evaluated through occupancy modeling.

American Bullfrog: This species was detected at 2 INDU sites by both methods combined. At 1 site it was detected only by manual scanning, and at the remaining site by both methods (recognizer and manual occupancy false absence rates = 0.500). It was absent from 46 sites where valid surveys were completed (assuming all parks but GRPO and ISRO are within range), and presence should be evaluated through occupancy modeling. Currently GRPO and ISRO are considered to be out of range for this species, but it may also have never occurred at APIS, MISS, PIRO, and SLBE (but could invade in future).

2.3.4 Species Without Recognizers

Manual scanning results are provided in Table 7 and Appendix B.

3. Discussion

We utilized additional automated recognizers in 2015. Recognizer false absence rates for site occupancy were below the maximum 0.3 level recommended for modeling (Mackenzie and Royle 2005) except the for Northern Leopard Frog and American Bullfrog. Recognition of these two species' calls appears to be often compromised by low frequency noise overwhelming the acoustic signal, typically from wind, waves, and anthropogenic sources such as trains, planes and motorized traffic. We therefore rely more on manual scanning for these species. We continue to work on recognizer improvements for these species, and on developing Fowler's Toad and Mink Frog recognizers. The efficacy of the Pickerel Frog recognizer cannot be well evaluated at this time owing to no park sites having recorded this species. It works well on the

non-park sites from which training files were obtained, however.

The manual scan procedure surveys for all species, including those for which automated detection is not developed. It involves visual recognition of call patterns with auditory verification, and 5-minute samples can be processed in roughly 2 minutes by experienced personnel using Song Scope software and quality headphones. We assume the technique returns no false presences, as every first and questionable detection is verified by a second observer, and if questions remain unresolved it is considered a non-detection (Casper *et al.* 2016). This process also identifies noise problems and equipment failures, adding to its value.

As in the 2014 data analyses, the 2015 manual scanning was more sensitive than automated scanning in detecting species, capturing more occupied sites. By species, the number of sites added from manual scanning (missed by automated scanning) were: Wood Frog (3), Spring Peeper (1), Western Chorus Frog (0), Boreal Chorus Frog (0), American Toad (4), Northern Leopard Frog (5), Pickerel Frog (0), Treefrogs combined (7), Blanchard's Cricket Frog (0), Green Frog (4), and American Bullfrog (1). A possible exception is American Toad, where automated analysis had a lower false absence rate than manual scanning.

American Bullfrog and Northern Leopard Frog detection rates are lower than expected by both methods. At some sites, it was apparent that these species call so sporadically, and their low frequency calls are so often buried in noise, that even with 30 samples they can be missed on manual scans. Thus, if detection is also imperfect by automated scanning even with larger sample sizes false absences remain. The same is true for American Toad, which often calls for only a few days/nights, but detection rates are so high for this species via automated analysis they are rarely missed. It is possible that these species are more sensitive to temperature, and utilizing additional temperature filters may improve detection rates. We will explore this possibility in future.

Data collection issues in 2015 included some equipment and logistical problems. Three ISRO Song Meters were deployed too late for adequate sampling of early callers (Wood Frog, Boreal Chorus Frog, Northern Leopard Frog), and equipment failures compromised surveys at PIRO01 and PIRO02. At GRPO02 high noise levels from a rushing river compromised site suitability, and a new site was chosen for 2016.

Blank files (which record a file the same size as good recordings but without sound) were found in no discernible pattern. We suspect these are due to microphone failure, and continue to recommend that microphones be tested each year before deployment and replaced as needed, and that two microphones continue to be attached to each unit to provide a backup channel. We also continue to recommend tracking microphones and recording microphone numbers on the deployment form. This allows for tracking recording failures against individual microphones. Corresponding labels should be added to the Song Meter housing at the microphone ports to make it easy to record the correct port (Channel 1, Channel 2) when deploying equipment.

Table 4 summarizes species status by park, and Table 5 provides breeding periods by park.

4. Literature Cited

- Casper, Gary S., and Erik Beever. 2013. Amphibian Monitoring Protocol, Version 1.1. National Park Service, Great Lakes Network. Natural Resources Technical Report NPS/MWR/GLKN/NRTR-2012/xxxx. National Park Service, Fort Collins, Colorado. 42pp. + 11 Standard Operating Procedures.
- Casper, Gary S., Erik Beever, Ulf Gafvert, and Stefanie M. Nadeau. 2016. Amphibian monitoring protocol, Version 2.0. National Park Service, Great Lakes Network. Natural Resources Technical Report NPS/MWR/GLKN/NRTR—2016/xxxx. National Park Service, Fort Collins, Colorado.
- Casper, Gary S., Ryne D. Rutherford, and Thomas G. Anton. 2015. Baseline distribution records for amphibians and reptiles in the Upper Peninsula of Michigan. *Herpetological Review* 46(3):391–406.
- Mackenzie, D. I., and J. A. Royle. 2005. Designing occupancy studies: general advice and allocating survey effort. *Journal of Applied Ecology* 42:1105-1114.

5. Tables

Table 1:	Recognizer Parameters
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Table 6:	Data Collection Results
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6. Appendices

- Appendix A: Recognizer Outputs (MS Excel file)
- Appendix B: Manual Scan Data Sheets (MS Excel file)

Table 1: Recognizer Parameters

Parameters	Blanchard's Cricket Frog	Spring Peeper	Treefrogs	Am. Toad	American Bullfrog	Green Frog	Pickerel Frog	Northern Leopard Frog	Wood Frog	Chorus Frogs
Sample Rate (Hz)	16000	16000	16000	16000	4000	8000	8000	8000	8000	8000
FFT Size	256	256	256	128	256	256	64	256	256	256
FFT Overlap	1/2	1/2	7/8	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Frequency Minimum	31	40	11	12	12	9	64	16	18	103
Frequency Range	45	16	36	8	27	94	15	41	60	128
Background Filter	1s	1s	1s	1s	1s	1s	1s	1s	1s	1s
Maximum Syllable (ms)	48	336	600	1008	1088	16	16	240	80	528
Maximum Gap (ms)	200	144	920	156	1088	224	600	288	848	368
Maximum Song (ms)	8648	400	2288	6844	25824	832	108	25840	2816	22704
Dynamic Range (dB)	20	25	20	15	20	20	13480	21	20	20
Maximum Complexity	32	44	43	32	32	32	32	32	32	30
Maximum Resolution	6	27	9	6	9	6	6	6	9	4
Cross Training	85.32 ± 4.75%	78.17 ± 9.37%	74.15 ± 4.38%	77.48 ± 5.03%	66.79 ± 4.19%	76.24 ± 6.42%	77.14 ± 10.81%	74.54 ± 4.24%	68.70 ± 5.84%	77.35 ± 637%
Total Training	87.16 ± 4.13%	83.58 ± 8.22%	74.06 ± 4.83%	77.39 ± 4.17%	70.85 ± 4.19%	75.88 ± 5.67%	76.88 ± 9.15%	75.88 ± 2.34%	72.88 ± 4.76%	78.53 ± 5.51%
Training Files	2 files; 7 annotations	2 files; 30 annotations	4 files; 38 annotations	3 files; 17 annotations	6 files; 23 annotations	3 files; 63 annotations	3 files; 12 annotations	5 files; 21 annotations	3 files; 14 annotations	4 files; 19 annotations
Annotations	A series of 4 to 7 clicks between 2500 & 4000 Hz	A single peep between 2000 & 4000 Hz	A 0.2 to 0.7 sec trill between 600 & 3000 Hz	A 5 to 9 sec trill between 1600 & 2250 Hz	3 to 6 syllables (strums) between 200 & 600 Hz	A 1 - 1.4 sec single syllable ('gung') between 300 - 2000 Hz	A 0.7 to 1 sec snore between 700 & 2500 Hz	A 1.5 to 3.5 sec series of knocks between 500 & 1600 Hz	2 to 3 single chirps between 500 & 2500 Hz	A 0.7 - 1.2 sec ascending trill between 3200 & 4000 Hz
Post-Processing Requirements	None	None	Count individual syllables in call to distinguish between species*	Excel Filter: Dur> 5 sec	Excel Filter: Dur>4.5 sec, Score>55	Excel Filter: Quality>30, Score>60	Excel Filter: Score>60	None	None	Ascertain species by location; Boreal Chorus Frog - Excel Filter: Score>65

*- HYCH: 41-71 syllables/sec; HYVE: 14 - 29 syllables/sec

Table 2: Data Summary

Sample	Date range of samples	Date range of valid samples	Invalid (i.e., empty) or missing evening samples	Deployment date & time of first sample	Recovery date & time	Temp data present?	Deployment notes present?	Mid-season check notes present?	Recovery form notes present?	Logger ID	Logger type	Logger placement	Logger notes	Notes regarding samples	Notes regarding songmeter	Sample statistics
APIS01	4/16/2015 - 8/17/2015	4/16/15 - 7/31/15	None	4/15/15; 4/16/15 12:00	9/14/2015 14:35	Yes	Yes	Yes	Yes	10401973	External air	under SM roof on backboard	Logger showing fail upon recovery	None	Indicator Light showed fail upon recovery; Beaver raised water during summer	15.4 GB, 1601 samples
APIS02	4/16/2015 - 9/16/2015	4/16/15 - 7/31/15	629_15 through 630_00	4/15/15; 4/16/15 12:00	9/14/2015 13:55	Yes	Yes	Yes	Yes	10187843	External air	under SM roof on backboard	Logger showing fail upon recovery	None	water much higher - need high boots	17.7 GB, 1979 samples
APIS03	4/25/2015 - 8/19/2015	4/27 - 8/19	Prior to 4/27	4/27/15; 4/27/15 15:00	9/14/2015 11:36	Yes	Yes	Yes	Yes	10401976	External air	under SM roof on backboard	Good condition	None	Indicator Light showed fail upon recovery	13.5 GB, 1510 samples
APIS04	4/28/2015 - 8/20/15	4/28/15 - 7/31/15	None	4/27/15; 4/28/15 12:00	9/14/2015 9:10	Yes	Yes	Yes	Yes	10187832	External air	under SM roof on backboard	Good condition	None	Indicator Light showed fail upon recovery; Move songmeter further South next year	13.3 GB, 1483 samples
APIS05	4/17/2015 - 8/23/15	4/17/15 - 7/31/15	None	4/17/15 12:00	9/22/2015 12:15	Yes	Yes	Yes	Yes	10187858	External air	in plastic cup on same tree as SM	logger not blinking at mid-season; removed	None	Indicator Light showed fail upon recovery; Sappy tree	51.6 GB, 1931 samples
APIS06	4/18/2015 - 8/10/15	4/18/15 - 7/31/15	None	4/17/15; 4/18/15 12:00	9/22/2015 11:35	Yes	Yes	Yes	Yes	10401958	External air	not recorded	Logger showing fail upon recovery	None	Indicator Light showed fail upon recovery	13.3 GB, 1492 samples
APIS07	4/18/2015 - 7/30/15	4/28/15 - 7/30/15	all data on 7/31/15	4/17/15; 4/18/15 12:00	9/14/2015 12:06	Yes	Yes	Yes	Yes	10401959	External air	under SM roof on backboard	None	None	Indicator Light showed fail upon recovery	12.1 GB, 1352 samples
APIS08	4/28/2015 - 8/13/15	4/28/15 - 7/31/15	None	4/28/15 12:00	9/14/2015 9:35	Yes	Yes	Yes	Yes	10187817	External air	on same tree as SM	Good condition	None	Indicator Light showed fail upon recovery	42.9 GB, 1605 samples
APIS10	4/28/2015 - 8/23/15	4/28/15 - 7/31/15	None	4/28/15 12:00	9/14/2015 13:00	Yes	Yes	Yes	Yes	10401943	External air	under SM roof on backboard	Good condition	None	Indicator Light showed fail upon recovery	13.6 GB, 1522 samples
APIS11	4/27/2015 - 8/20/15	4/27/15 - 7/31/16	None	4/27/15 14:00	9/15/2015	Yes	Yes	Yes	Yes	10191733	External air	on same tree as SM	Good condition	None	None	44.8 GB, 1673 samples
GRPO02	5/14/2015 - 8/20/15	5/13/15; 5/14/15 - 7/31/12	All samples invalid due to loud background noise	5/13/15; 5/14/15 12:00	8/20/2015 10:09	Yes	Yes	No	Yes	10401974	External air	under SM roof on backboard	None	Background noise is too loud - need to move SM	None	11.4 GB, 1274 samples
GRPO03	5/13/2015 - 8/21/15	5/13/15 - 7/31/13	None	5/13/15 12:00	8/21/2015 12:00	Yes	Yes	No	Yes	10187852	External air	under SM roof on backboard	None	All calls very faint - SM too far from wetland?	tape off	11.6 GB, 1300 samples
GRPO04	5/13/2015 - 8/21/15	5/13/15 - 7/31/13	None	5/13/15 12:00	8/21/2015 12:22	Yes	Yes	No	Yes	10643666	External air	under SM roof on backboard	None	All calls very faint - SM too far from wetland?	None	11.6 GB, 1301 samples
GRPO05	5/13/2015 - 8/21/15	5/13/15 - 7/31/13	None	5/13/15 13:00	8/21/2015 11:31	Yes	Yes	No	Yes	10191718	External air	under SM roof on backboard	None	All calls very faint - SM too far from wetland?	sealing tape came off	11.6 GB, 1300 samples
GRPO06	5/13/2015 - 8/21/15	5/13/15 - 7/31/12	0515_2100, 0522_2300, 0610_0000, 0613_2100, 0706_2300, 0818_2300	5/13/15 12:00	8/21/2015 13:03	Yes	Yes	No	Yes	10187818	External air	under SM roof on backboard	None	None	sealing tape came off	11.4 GB, 1275 samples
GRPO07	5/9/2015 - 8/21/15	5/14/2015	Prior to 0514_15	5/12/15 ?	8/20/2015 11:18	No	Yes	No	Yes	NA	External air	under SM roof on backboard	No logger	Samples recorded on Channel 2; loud low frequency background noise - could mask frogs with low freq	seam tape loose	12.0 GB, 1339 samples
INDU01	3/18/15 - 6/25/15	4/1/15 - 6/25/15	Blank prior to 0401_1200; 625_22	3/18/15 10:00; 12:00	11/2/2015 13:50	Yes	Yes	No	Yes	10191730	water		None	None	Indicator light showed fail upon recovery	13.4 GB, 1497 samples
INDU02	3/18/15 - 7/04/15	4/02/15 - 7/04/15	Blank prior to 402_1600	3/18/2015 10:00; 12:00	11/3/2015 9:15	Yes	Yes	No	Yes	10187825	water		None	None	Both mics broken; Indicator Light showed fail upon recovery	14.5 GB, 1619 samples
INDU03	3/18/15 - 7/07/15	4/03/15 - 7/07/15	blank prior to 403_13; 707_23	3/18/2015 10:00; 12:00	11/3/2015 10:15	No	Yes	No	Yes	10401953	water		Logger lost	None	Indicator Light showed fail upon recovery	14.9 GB, 1672 samples
INDU04	3/18/15 - 6/19/15	3/18/15 - 6/19/15	blank prior to 0318_15; 0619_01	3/18/2015 10:00; 12:00	11/2/2015 14:30	Yes	Yes	No	Yes	10191736	water		None	None	Both mics broken; Indicator Light showed fail upon recovery	12.4 GB, 1394 samples
INDU05	3/18/15 - 7/13/15	4/01/15 - 7/13/15	blank prior to 0401_1500	3/18/2015 10:00; 12:00	11/2/2015 12:10	Yes	Yes	No	Yes	10187853	water		all data occurred before logger was deployed	None	Indicator Light showed fail upon recovery	15.7 GB, 1754 samples
INDU06	3/18/15 - 7/04/15	4/02/15 - 6/14/15	blank prior to 402_15; empty after 6/14 2300	3/18/2015 10:00; 12:00	11/3/2015 10:55	Yes	Yes	No	Yes	10187821	water		None	None	one mic broken; indicator light showed fail upon recovery	14.5 GB, 1619 samples
INDU07	3/18/15 - 7/06/15	4/01/15 - 7/06/15	blank prior to 401_15; 411_02	3/18/2015 10:00; 12:00	11/2/2015 11:10	Yes	Yes	No	Yes	10187855	water		all data occurred before logger was deployed	None	Indicator light showed failed upon recovery	14.8 GB, 1659 samples

Table 2: Data Summary

Sample	Date range of samples	Date range of valid samples	Invalid (i.e., empty) or missing evening samples	Deployment date & time of first sample	Recovery date & time	Temp data present?	Deployment notes present?	Mid-season check notes present?	Recovery form notes present?	Logger ID	Logger type	Logger placement	Logger notes	Notes regarding samples	Notes regarding songmeter	Sample statistics
INDU08	3/18/15 - 7/09/15	4/02/15 - 7/09/15	blank prior to 402_01	3/18/2015 10:00; 12:00	11/2/2015 11:45	Yes	Yes	No	Yes	10191731	water		None	None	Indicator light showed failed upon recovery	15.3 GB, 1708 samples
INDU09	3/18/15 - 7/08/15	4/01/15 - 7/08/15	blank prior to 401_14	3/18/2015 10:00; 12:00	11/2/2015 10:15	Yes	Yes	No	Yes	10187835	water		recovery: logger stuck at top of pole out of water	None	The tree the SM was anchored to fell; SM submerged and mic broken	15.0 GB, 1678 samples
INDU10	3/18/15 - 7/06/15	4/01/15 - 7/06/15	blank prior to 401_14	3/18/2015 10:00; 12:00	11/2/2015 10:45	Yes	Yes	No	Yes	10187826	water		wetland dry	None	Indicator light showed failed upon recovery	14.7 GB, 1649 samples
ISRO01	5/17/2015 - 7/22/15	5/17/2015 - 7/22/15	Missing 518 samples within the data range	5/16/2015; 5/17/15 12:00	7/28/2015 12:15	No	Yes	Yes	Yes	10643665	External air	on backboard	None	None	None	2.5 GB, 301 samples
ISRO02	5/20/2015 - 7/31/15	5/19/2015; 5/20/15 - 7/31/15	samples after 0731_00	5/19/2015; 5/20/15 12:00	7/31/2015 11:20	No	Yes	Yes	Yes	10643664	External air	on backboard	None	None	None	8.39 GB, 936 samples
ISRO03	5/20/2015 - 7/31/15	5/19/2015; 5/20/15 - 7/31/15	samples after 0731_13	5/19/2015; 5/20/15 12:00	7/31/2015 13:00	No	Yes	Yes	Yes	10643659	water	on backboard	Logger gone at mid-season check - broken off wire	None	None	8.41 GB, 939 samples
ISRO04	5/17/2015 - 5/20/15; 7/14/15 - 8/12/15	5/17/15 - 7/31/15	Missing samples from 0520_17 through 0714_12	5/17/15 12:00	8/12/2015 15:25	No	Yes	Yes	Yes	10643661	External air	on backboard	2 loggers noted? good condition; not submerged	Failed at mid-season check; redeployed on 7/14/15	None	3.76 GB, 431 samples
ISRO05	6/24/2015 - 7/30/15	6/23/2015; 6/24/15 - 7/31/15	Samples after 730_19	6/23/2015; 6/24/15 12:00	7/30/2015 19:00	No	Yes	Yes	Yes	10643667	External air	on backboard	air and water logger noted? good condition	None	Songmeter hard to reach	4.27 GB, 476 samples
ISRO06	5/19/2015 - 7/31/15	5/19/15 - 7/31/15	Samples after 0731_14	5/19/15 12:00	7/31/2015 14:30	No	Yes	Yes	Yes	10401960	External air	on backboard	air and water logger noted? good condition	None	No blinking light, though unit is functional	7.64 GB, 952 samples
ISRO07	6/5/2015 - 9/2/15	6/4/15; 6/5/15 - 7/31/15	None	6/4/15; 6/5/15 12:00	9/2/2015 9:20	No	Yes	Yes	Yes	10643658	External air	on backboard	air and water logger noted? good condition, not submerged	None	None	10.4 GB, 1171 samples
ISRO08	5/17/2015 - 8/5/15	5/17/15 - 7/31/15	None	5/16/15; 5/17/15 12:00	8/15/2015 13:15	No	Yes	Yes	Yes	10643662	External air	immediately below SM	Air and water loggers noted? Temp probe buried in 2" muck at recovery	None	None	9.34 GB, 1044 samples
ISRO09	6/4/2015 - 7/30/15	6/4/15 - 7/31/15	Samples after 730_20	6/4/15 12:00	7/30/2015 20:00	No	Yes	Yes	Yes	10643663	External air	on backboard	Air and water loggers noted? good condition	None	None	6.61 GB, 737 samples
ISRO10	5/16/2015 - 8/13/15	5/16/15 - 7/31/15	None	5/16/15 12:00	8/13/2015 11:50	No	Yes	Yes	Yes	10643657	External air	immediately below SM	air and water loggers noted? good condition	None	None	10.3 GB, 1159 samples
MISS01	4/18/2015 - 8/2/15	4/18/15 - 7/31/15	None	4/17/2015; 4/18/15 12:00	9/25/15, 14:50	Yes	Yes	No	Yes	10401949	External air	under SM roof on backboard	good condition	Can hear road noise from Hiawatha/55	Indicator Light showed fail upon recovery	14.3 GB, 1600 samples
MISS02	4/9/2015 - 7/23/15	4/9/15 - 7/23/15	None	4/8/2015; 4/9/15 12:00	9/25/15, 12:46:00 PM	Yes	Yes	No	Yes	10401966	External air	under SM roof on backboard	good condition	None	Indicator Light showed fail upon recovery	14.1 GB, 1574 samples
MISS03	4/8/2015 - 7/29/15	4/8/2015 - 7/29/15	None	4/8/2015, 12:00	9/22/15, 13:13	Yes	Yes	No	Yes	10401940	External air	hanging from SM	good condition	None	Indicator Light showed fail upon recovery	15.0 GB, 1678 samples
MISS04	4/9/2015 - 9/7/15	4/9/15 - 7/31/15	None	4/8/2015; 4/9/15 12:00	9/25/15, 13:10	Yes	Yes	No	Yes	10401972	External air	on backboard	good condition	None	Indicator Light showed fail upon recovery	19.9 GB, 2223 samples
MISS05	4/16/2015 - 8/18/15	4/16/2015 - 7/31/15	None	4/16/2015, 12:00	9/25/15, 11:32	Yes	Yes	No	Yes	10187844	water		covered with brown algae, otherwise ok	None	Indicator Light showed fail upon recovery	16.7 GB, 1869 samples
MISS06	4/11/2015 - 6/29/15	4/11/2015 - 6/29/15	None	4/10/15; 4/11/2015 12:00	9/25/15, 14:20	Yes	Yes	No	Yes	10401969	External air	not recorded	good condition	None	Indicator Light showed fail upon recovery	10.6 GB, 1191 samples
MISS07	4/16/2015 - 8/6/15	4/16/2015 - 7/31/15	None	4/16/2015, 12:00	9/22/15, 12:35	Yes	Yes	No	Yes	10401955	External air	? on backboard	good condition	Suggestion to move site back to South of 494	Large active ant colony in battery compartment; bridge where there may be Northern Cricket frog	15.1 GB, 1692 samples
MISS08	4/9/2015 - 8/16/15	4/9/15 - 7/31/15	None	4/8/2015; 4/9/15 12:00	9/22/15, 13:56	Yes	Yes	No	Yes	10191720	water		good condition	None	Indicator Light showed fail upon recovery	17.7 GB, 1976 samples
MISS09	4/10/2015 - 4/23/15	4/10/2015 - 4/23/15	all after 422_22	4/10/2015, 12:00	9/25/15, 10:26	Yes	Yes	No	Yes	10401977	External air	under SM roof on backboard	good condition	Songmeter died < 1 month after deployment	Indicator Light showed fail upon recovery	1.71 GB, 193 samples
MISS10	4/10/2015 - 7/28/15	4/10/2015 - 7/28/15	None	4/10/2015, 12:00	9/25/15, 9:50	Yes	Yes	No	Yes	10187833	water		good condition	None	Indicator Light showed fail upon recovery	14.6 GB, 1646 samples
PIRO02	None	None	All	7/30/2015 2:45:00 PM (second deployment)	8/26/2015 9:22	Yes	Yes	Yes	Yes	10187854	water		Logger in good condition	All samples are bad	Unit failed after both deployments - unit filled with water	

Table 2: Data Summary

Sample	Date range of samples	Date range of valid samples	Invalid (i.e., empty) or missing evening samples	Deployment date & time of first sample	Recovery date & time	Temp data present?	Deployment notes present?	Mid-season check notes present?	Recovery form notes present?	Logger ID	Logger type	Logger placement	Logger notes	Notes regarding samples	Notes regarding songmeter	Sample statistics
PIRO03	4/28/2015 - 8/25/15	4/28/2015 - 7/31/15	missing 0721_16 through 0722_03	4/27/2015 14:45; 4/28/15 12:00	8/25/2015 10:05	Yes	Yes	Yes	Yes	10187856	water		good condition, covered in algae	None	None	16.9 GB, 1892 samples
PIRO04	5/5/2015 - 8/9/15	5/5/2015 - 7/31/15	missing 0720_16 through 0721_03; 0809_1300;	5/4/2015 12:55; 5/5/2015 12:00	8/26/2015 10:40	Yes	Yes	Yes	Yes	10187819	External air	not recorded	good condition	start Ch 2 at 0721_12	Mics damaged and unit wouldn't power up at recovery	13.6 GB, 1526 samples
PIRO05	4/27/2015 - 8/25/15	4/27/2015 - 7/31/15	None	4/27/2015 10:55; 4/27/2015 12:00	8/25/2015 9:15	Yes	Yes	Yes	Yes	10191735	External air	not recorded	good condition	None	None	17.2 GB, 1920 samples
PIRO06	4/30/2015 - 8/25/15	4/30/2015 - 7/31/15	missing 0720_15 through 0721_03	4/29/2015 13:50; 4/30/2015 12:00	8/25/2015 14:12	Yes	Yes	Yes	Yes	10187816	water		good condition	None	Both mics damaged at recovery, but appear intact; wetland drained by end of season	16.7 GB, 1862 samples
PIRO07	4/30/2015 - 8/26/15	4/30/2015 - 7/31/15	None	4/30/2015 11:45; 4/30/2015 12:00	8/26/2015 14:02	Yes	Yes	Yes	Yes	10187836	External air	not recorded	good condition	None	None	16.9 GB, 1891 samples
PIRO08	4/30/2015 - 8/26/15	4/30/2015 - 7/31/15	missing 0720_14 through 0721_03	4/29/2015 14:50; 4/30/2015 12:00	8/26/2015 12:16	Yes	Yes	Yes	Yes	10187831	External air	not recorded	good condition	None	None	16.8 GB, 1875 samples
PIRO09	4/30/2015 - 8/25/15	4/29/15 - 7/31/15	Missing 0609_16 to 0610_03, 0612_20 to 0613_03, 0619_17 to 0620_03, 623_18 to 0624_03, 0625_18 to 0626_03, 0626_18 to 0627_03, 0627_16 to 0628_03, 0628_18 to 0629_03, 0702_17 to 0703_03, 0705_15 to 0706_03, 0708_16 to 0709_03, 0710_16 to 0711_03, 0730_13 to 0731_03	4/29/2015 11:45; 4/30/2015 12:00	8/25/2015 12:39	Yes	Yes	Yes	Yes	10187848	External air	not recorded	good condition	None	115 samples not collected on some afternoons; SM restarted the next day at noon	15.4 GB, 1726 samples
PIRO10	4/29/2015 - 8/25/15	4/29/15 - 7/31/15	Missing 0719_22 through 0731_03	4/29/2015 10:45; 4/29/2015 12:00	8/25/2015 13:20	Yes	Yes	Yes	Yes	10187842	External air	not recorded	good condition	None	Unit failed; redeployed 7/30 12:15	13.8 GB, 1707 samples
SLBE01	4/20/15 - 7/25/15	4/20/15 - 7/25/15	missing files after 0725_00	4/20/15 12:00	8/21/2015 11:20	Yes	Yes	Yes	Yes	10187823	water		Logger in water/muck	None	East-facing mic broken off, dangling by wire, no mic cover at recovery; failure light at recovery	11.1 GB, 1248 samples
SLBE02	4/18/15 - 8/07/15	4/18/15 - 7/31/15		4/17/15; 4/18/15 12:00	8/21/2015 9:29	No	Yes	Yes	Yes	10187851	water		No data in file; Logger found loose in muck; stake was present but float missing	None	Failure light at recovery	15.0 GB, 1678 samples
SLBE03	4/19/15 - 8/02/15	4/19/15 - 7/31/15		4/18/15; 4/19/15 12:00	8/25/2015 12:01	Yes	Yes	Yes	Yes	10187839	water?	floating - attached to brick	Good condition; submerged	None	Failure light at recovery	14.1 GB, 1574 samples
SLBE04	4/01/15, 4/21/15 - 7/20/15	4/21/15 - 7/20/15		4/20/15; 4/21/15 12:00	7/20/2015 23:00	No	Yes	Yes	Yes	10187827	air?	not recorded	All data prior to deployment. Good condition; in shrub; No open water left in wetland	None	Failure light at recovery	12.3 GB, 1377 samples
SLBE05	4/17/15 - 8/03/15	4/17/15 - 7/31/15		4/17/15 12:00	8/21/2015 10:25	No	Yes	Yes	Yes	10401948	air?		All data prior to deployment; Good condition; in shrub	None	Failure light at recovery	14.6 GB, 1631 samples
SLBE06	4/01/15, 4/18/15 - 8/01/15	4/18/15 - 7/31/15	4/01 & 4/02 files	4/18/15 12:00	8/25/2015 9:35	Yes	Yes	Yes	Yes	10187845	water		Good condition; in shrub	None	Failure light at recovery	14.2 GB, 1588 samples
SLBE07	4/01/15, 4/21/15 - 8/17/15	4/21/15 - 7/31/15	4/01 & 4/02 files; 505_1600	4/17/15; 4/18/15 12:00	8/21/2015 12:10	Yes	Yes	Yes	Yes	10187829	air?		Good condition; in shrub	None	Failure light at recovery	16.4 GB, 1839 samples
SLBE08	4/26/15 - 8/11/15	4/26/15 - 7/31/15		4/25/15; 4/26/15 12:00	8/25/2015 13:42	Yes	Yes	Yes	Yes	10191716	External air	hanging in Cedar, about 2 m from SM	Good condition	Channel 2, and sounds are faint - mic may be broken	Failure light at recovery; soil is mucky at access point for songmeter	14.4 GB, 1614 samples
SLBE09	4/18/15 - 8/14/15	4/18/15 - 7/31/15	606_1500	4/17/15; 4/18/15 12:00	8/21/2015 12:52	Yes	Yes	Yes	Yes	10187841	air?		Good condition; in bush	None	Failure light at recovery	15.9 GB, 1781 samples

Table 2: Data Summary

Sample	Date range of samples	Date range of valid samples	Invalid (i.e., empty) or missing evening samples	Deployment date & time of first sample	Recovery date & time	Temp data present?	Deployment notes present?	Mid-season check notes present?	Recovery form notes present?	Logger ID	Logger type	Logger placement	Logger notes	Notes regarding samples	Notes regarding songmeter	Sample statistics
SLBE11	4/01/15, 4/28/15 - 8/17/15	4/28/15 - 7/31/15	4/01 & 4/02 files	4/28/15 12:00	8/26/2015 15:00	Yes	Yes	Yes	Yes	10187860	External air	attached to tree above SM	Good condition	None	None	15.1 GB, 1689 samples

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
APIS01	Spring Peeper	PSCR	5688	206	60
APIS02	Spring Peeper	PSCR	6072	200	63
APIS03	Spring Peeper	PSCR	4599	224	61
APIS04	Spring Peeper	PSCR	3921	196	52
APIS05	Spring Peeper	PSCR	10807	326	58
APIS06	Spring Peeper	PSCR	365	115	48
APIS07	Spring Peeper	PSCR	4907	245	69
APIS08	Spring Peeper	PSCR	3935	196	47
APIS10	Spring Peeper	PSCR	5013	204	57
APIS11	Spring Peeper	PSCR	8301	331	63
APIS01	Northern Leopard Frog	LIPIi	93	0	0
APIS02	Northern Leopard Frog	LIPIi	40	0	0
APIS03	Northern Leopard Frog	LIPIi	82	0	0
APIS04	Northern Leopard Frog	LIPIi	123	0	0
APIS05	Northern Leopard Frog	LIPIi	213	0	0
APIS06	Northern Leopard Frog	LIPIi	40	0	0
APIS07	Northern Leopard Frog	LIPIi	0	0	0
APIS08	Northern Leopard Frog	LIPIi	109	0	0
APIS10	Northern Leopard Frog	LIPIi	422	0	0
APIS11	Northern Leopard Frog	LIPIi	66	0	0
APIS01	American Toad	ANAM	659	39	19
APIS02	American Toad	ANAM	9	0	0
APIS03	American Toad	ANAM	533	46	22
APIS04	American Toad	ANAM	596	45	22
APIS05	American Toad	ANAM	383	21	5
APIS06	American Toad	ANAM	79	15	11
APIS07	American Toad	ANAM	76	13	11
APIS08	American Toad	ANAM	330	29	11
APIS10	American Toad	ANAM	426	35	15
APIS11	American Toad	ANAM	377	44	17
APIS01	American Bullfrog	LICA	11	0	0
APIS02	American Bullfrog	LICA	8	0	0
APIS03	American Bullfrog	LICA	83	0	0
APIS04	American Bullfrog	LICA	17	0	0
APIS05	American Bullfrog	LICA	14	0	0
APIS06	American Bullfrog	LICA	3	0	0
APIS07	American Bullfrog	LICA	14	0	0
APIS08	American Bullfrog	LICA	0	0	0
APIS10	American Bullfrog	LICA	7	0	0
APIS11	American Bullfrog	LICA	8	0	0
APIS01	Boreal chorus frog	PSMA	41	0	0
APIS02	Boreal chorus frog	PSMA	129	0	0
APIS03	Boreal chorus frog	PSMA	54	0	0
APIS04	Boreal chorus frog	PSMA	163	0	0
APIS05	Boreal chorus frog	PSMA	439	0	0
APIS06	Boreal chorus frog	PSMA	219	0	0
APIS07	Boreal chorus frog	PSMA	82	0	0
APIS08	Boreal chorus frog	PSMA	1045	0	0
APIS10	Boreal chorus frog	PSMA	82	0	0
APIS11	Boreal chorus frog	PSMA	269	0	0
APIS01	Tree Frog	HYVE	55	7	5

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
APIS02	Tree Frog	HYVE	103	13	10
APIS03	Tree Frog	HYVE	0	0	0
APIS04	Tree Frog	HYVE	0	0	0
APIS05	Tree Frog	HYVE	168	22	15
APIS06	Tree Frog	HYVE	59	28	20
APIS07	Tree Frog	HYVE	249	32	19
APIS08	Tree Frog	HYVE	0	0	0
APIS10	Tree Frog	HYVE	813	30	15
APIS11	Tree Frog	HYVE	0	0	0
APIS01	Green Frog	LICL	6700	157	59
APIS02	Green Frog	LICL	1043	110	41
APIS03	Green Frog	LICL	5533	119	46
APIS04	Green Frog	LICL	2355	122	45
APIS05	Green Frog	LICL	1850	190	45
APIS06	Green Frog	LICL	13	0	0
APIS07	Green Frog	LICL	2602	130	45
APIS08	Green Frog	LICL	36	0	0
APIS10	Green Frog	LICL	1351	164	51
APIS11	Green Frog	LICL	11269	230	54
APIS01	Wood Frog	LISY	215	0	0
APIS02	Wood Frog	LISY	72	0	0
APIS03	Wood Frog	LISY	179	0	0
APIS04	Wood Frog	LISY	301	39	16
APIS05	Wood Frog	LISY	115	0	0
APIS06	Wood Frog	LISY	31	0	0
APIS07	Wood Frog	LISY	576	40	14
APIS08	Wood Frog	LISY	407	34	13
APIS10	Wood Frog	LISY	337	30	12
APIS11	Wood Frog	LISY	231	0	0
APIS	Mink Frog				
GRPO03	Boreal chorus frog	PSMA	5	0	0
GRPO04	Boreal chorus frog	PSMA	0	0	0
GRPO05	Boreal chorus frog	PSMA	16	0	0
GRPO06	Boreal chorus frog	PSMA	66	0	0
GRPO07	Boreal chorus frog	PSMA	0	0	0
GRPO03	Wood Frog	LISY	8	0	0
GRPO04	Wood Frog	LISY	4	0	0
GRPO05	Wood Frog	LISY	21	0	0
GRPO06	Wood Frog	LISY	41	0	0
GRPO07	Wood Frog	LISY	0	0	0
GRPO03	Spring Peeper	PSCR	73	18	10
GRPO04	Spring Peeper	PSCR	36	20	13
GRPO05	Spring Peeper	PSCR	68	25	16
GRPO06	Spring Peeper	PSCR	1679	108	30
GRPO07	Spring Peeper	PSCR	300	33	18
GRPO03	American Toad	ANAM	24	0	0
GRPO04	American Toad	ANAM	4	0	0
GRPO05	American Toad	ANAM	14	1	1
GRPO06	American Toad	ANAM	43	24	13
GRPO07	American Toad	ANAM	13	0	0
GRPO03	Northern Leopard Frog	LIPIi	71	0	0

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
GRPO04	Northern Leopard Frog	LIPIi	41	0	0
GRPO05	Northern Leopard Frog	LIPIi	79	0	0
GRPO06	Northern Leopard Frog	LIPIi	2	0	0
GRPO07	Northern Leopard Frog	LIPIi	0	0	0
GRPO03	Tree Frog	HYVE	3	1	1
GRPO04	Tree Frog	HYVE	3	1	1
GRPO05	Tree Frog	HYVE	16	4	3
GRPO06	Tree Frog	HYVE	0	0	0
GRPO07	Tree Frog	HYVE	0	0	0
GRPO03	Green Frog	LICL	108	0	0
GRPO04	Green Frog	LICL	47	0	0
GRPO05	Green Frog	LICL	115	1	1
GRPO06	Green Frog	LICL	214	30	18
GRPO07	Green Frog	LICL	0	0	0
INDU01	Spring Peeper	PSCR	1424	164	48
INDU02	Spring Peeper	PSCR	15869	313	47
INDU03	Spring Peeper	PSCR	4548	292	47
INDU04	Spring Peeper	PSCR	3226	105	16
INDU05	Spring Peeper	PSCR	10962	289	45
INDU06	Spring Peeper	PSCR	12363	326	53
INDU07	Spring Peeper	PSCR	13312	359	62
INDU08	Spring Peeper	PSCR	12036	284	44
INDU09	Spring Peeper	PSCR	7676	331	49
INDU10	Spring Peeper	PSCR	10493	407	75
INDU01	American Toad	ANAM	81	7	2
INDU02	American Toad	ANAM	1502	48	11
INDU03	American Toad	ANAM	337	27	10
INDU04	American Toad	ANAM	17	0	0
INDU05	American Toad	ANAM	163	38	17
INDU06	American Toad	ANAM	222	27	17
INDU07	American Toad	ANAM	314	29	11
INDU08	American Toad	ANAM	50	10	18
INDU09	American Toad	ANAM	670	63	2
INDU10	American Toad	ANAM	54	3	4
INDU01	Northern Leopard Frog	LIPIi	136	0	0
INDU02	Northern Leopard Frog	LIPIi	147	12	4
INDU03	Northern Leopard Frog	LIPIi	239	0	0
INDU04	Northern Leopard Frog	LIPIi	55	0	0
INDU05	Northern Leopard Frog	LIPIi	57	0	0
INDU06	Northern Leopard Frog	LIPIi	1042	0	0
INDU07	Northern Leopard Frog	LIPIi	77	0	0
INDU08	Northern Leopard Frog	LIPIi	124	1	1
INDU09	Northern Leopard Frog	LIPIi	1649	1	1
INDU10	Northern Leopard Frog	LIPIi	3482	15	5
INDU01	American Bullfrog	LICAI	1	0	0
INDU02	American Bullfrog	LICAI	3	0	0
INDU03	American Bullfrog	LICAI	18	0	0
INDU04	American Bullfrog	LICAI	1	0	0
INDU05	American Bullfrog	LICAI	2	0	0
INDU06	American Bullfrog	LICAI	9	0	0
INDU07	American Bullfrog	LICAI	36	0	0

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
INDU08	American Bullfrog	LICAI	0	0	0
INDU09	American Bullfrog	LICAI	68	29	11
INDU10	American Bullfrog	LICAI	20	1	1
INDU01	Tree Frog	HYVE	52	8	5
INDU02	Tree Frog	HYVE	13	3	2
INDU03	Tree Frog	HYVE	83	4	3
INDU04	Tree Frog	HYVE	0	0	0
INDU05	Tree Frog	HYVE	22	3	3
INDU06	Tree Frog	HYVE	498	47	16
INDU07	Tree Frog	HYVE	1236	76	30
INDU08	Tree Frog	HYVE	490	38	16
INDU09	Tree Frog	HYVE	1542	91	27
INDU10	Tree Frog	HYVE	948	146	52
INDU01	Green Frog	LICL	43	0	0
INDU02	Green Frog	LICL	638	91	25
INDU03	Green Frog	LICL	584	106	39
INDU04	Green Frog	LICL	107	0	0
INDU05	Green Frog	LICL	173	72	31
INDU06	Green Frog	LICL	720	89	24
INDU07	Green Frog	LICL	5882	251	47
INDU08	Green Frog	LICL	4075	266	53
INDU09	Green Frog	LICL	4854	228	53
INDU10	Green Frog	LICL	5820	285	57
INDU01	Western chorus frog	PSMA	2112	85	25
INDU02	Western chorus frog	PSMA	3985	0	0
INDU03	Western chorus frog	PSMA	3187	21	4
INDU04	Western chorus frog	PSMA	1577	90	17
INDU05	Western chorus frog	PSMA	2612	82	14
INDU06	Western chorus frog	PSMA	3031	0	0
INDU07	Western chorus frog	PSMA	4494	261	42
INDU08	Western chorus frog	PSMA	4479	0	0
INDU09	Western chorus frog	PSMA	4198	25	5
INDU10	Western chorus frog	PSMA	7287	140	26
INDU01	Wood Frog	LISY	32	0	0
INDU02	Wood Frog	LISY	39	0	0
INDU03	Wood Frog	LISY	48	0	0
INDU04	Wood Frog	LISY	11	0	0
INDU05	Wood Frog	LISY	77	12	7
INDU06	Wood Frog	LISY	84	0	0
INDU07	Wood Frog	LISY	179	0	0
INDU08	Wood Frog	LISY	145	0	0
INDU09	Wood Frog	LISY	186	5	3
INDU10	Wood Frog	LISY	505	39	11
INDU01	Cricket Frog	ACCR3	1552	0	0
INDU02	Cricket Frog	ACCR3	2	0	0
INDU03	Cricket Frog	ACCR3	5	0	0
INDU04	Cricket Frog	ACCR3	0	0	0
INDU05	Cricket Frog	ACCR3	0	0	0
INDU06	Cricket Frog	ACCR3	106	0	0
INDU07	Cricket Frog	ACCR3	10	0	0
INDU08	Cricket Frog	ACCR3	54	0	0

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
INDU09	Cricket Frog	ACCR3	26	0	0
INDU10	Cricket Frog	ACCR3	47	0	0
ISRO01	Spring Peeper	PSCR	1928	69	21
ISRO02	Spring Peeper	PSCR	2529	118	37
ISRO03	Spring Peeper	PSCR	4520	141	54
ISRO04	Spring Peeper	PSCR	210	12	4
ISRO05	Spring Peeper	PSCR	2576	67	26
ISRO06	Spring Peeper	PSCR	2412	151	50
ISRO07	Spring Peeper	PSCR	1472	61	28
ISRO08	Spring Peeper	PSCR	1901	96	30
ISRO09	Spring Peeper	PSCR	27	4	3
ISRO10	Spring Peeper	PSCR	4709	113	37
ISRO01	Boreal chorus frog	PSMA	10	0	0
ISRO02	Boreal chorus frog	PSMA	46	0	0
ISRO03	Boreal chorus frog	PSMA	47	0	0
ISRO04	Boreal chorus frog	PSMA	20	0	0
ISRO05	Boreal chorus frog	PSMA	0	0	0
ISRO06	Boreal chorus frog	PSMA	27	0	0
ISRO07	Boreal chorus frog	PSMA	0	0	0
ISRO08	Boreal chorus frog	PSMA	40	0	0
ISRO09	Boreal chorus frog	PSMA	0	0	0
ISRO10	Boreal chorus frog	PSMA	175	34	14
ISRO01	American Toad	ANAM	0	0	0
ISRO02	American Toad	ANAM	1	1	1
ISRO03	American Toad	ANAM	2	1	1
ISRO04	American Toad	ANAM	1	0	0
ISRO05	American Toad	ANAM	0	0	0
ISRO06	American Toad	ANAM	0	0	0
ISRO07	American Toad	ANAM	1	0	0
ISRO08	American Toad	ANAM	18	6	4
ISRO09	American Toad	ANAM	1	1	1
ISRO10	American Toad	ANAM	0	0	0
ISRO01	Tree Frog	HYVE	0	0	0
ISRO02	Tree Frog	HYVE	0	0	0
ISRO03	Tree Frog	HYVE	1	0	0
ISRO04	Tree Frog	HYVE	0	0	0
ISRO05	Tree Frog	HYVE	0	0	0
ISRO06	Tree Frog	HYVE	0	0	0
ISRO07	Tree Frog	HYVE	0	0	0
ISRO08	Tree Frog	HYVE	3	0	0
ISRO09	Tree Frog	HYVE	0	0	0
ISRO10	Tree Frog	HYVE	0	0	0
ISRO01	Green Frog	LICL	1886	78	43
ISRO02	Green Frog	LICL	1157	137	53
ISRO03	Green Frog	LICL	617	89	41
ISRO04	Green Frog	LICL	1006	49	16
ISRO05	Green Frog	LICL	1405	109	36
ISRO06	Green Frog	LICL	1026	71	35
ISRO07	Green Frog	LICL	380	79	42
ISRO08	Green Frog	LICL	4417	177	60
ISRO09	Green Frog	LICL	14	0	0

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
ISRO10	Green Frog	LICL	128	0	0
ISRO01	Wood Frog	LISY	95	0	0
ISRO02	Wood Frog	LISY	80	0	0
ISRO03	Wood Frog	LISY	53	0	0
ISRO04	Wood Frog	LISY	31	0	0
ISRO05	Wood Frog	LISY	0	0	0
ISRO06	Wood Frog	LISY	72	0	0
ISRO07	Wood Frog	LISY	0	0	0
ISRO08	Wood Frog	LISY	62	0	0
ISRO09	Wood Frog	LISY	0	0	0
ISRO10	Wood Frog	LISY	56	0	0
MISS01	Spring Peeper	PSCR	132	0	0
MISS02	Spring Peeper	PSCR	99	0	0
MISS03	Spring Peeper	PSCR	16	0	0
MISS04	Spring Peeper	PSCR	94	0	0
MISS05	Spring Peeper	PSCR	41	0	0
MISS06	Spring Peeper	PSCR	112	0	0
MISS07	Spring Peeper	PSCR	109	0	0
MISS08	Spring Peeper	PSCR	40	0	0
MISS09	Spring Peeper	PSCR	0	0	0
MISS10	Spring Peeper	PSCR	2	0	0
MISS01	Boreal chorus frog	PSMA	36	0	0
MISS02	Boreal chorus frog	PSMA	89	0	0
MISS03	Boreal chorus frog	PSMA	1144	0	0
MISS04	Boreal chorus frog	PSMA	96	0	0
MISS05	Boreal chorus frog	PSMA	772	120	33
MISS06	Boreal chorus frog	PSMA	129	0	0
MISS07	Boreal chorus frog	PSMA	3360	183	39
MISS08	Boreal chorus frog	PSMA	810	0	0
MISS09	Boreal chorus frog	PSMA	45	0	0
MISS10	Boreal chorus frog	PSMA	2	0	0
MISS01	American Toad	ANAM	1819	132	36
MISS02	American Toad	ANAM	514	99	29
MISS03	American Toad	ANAM	70	16	5
MISS04	American Toad	ANAM	1312	94	32
MISS05	American Toad	ANAM	1478	41	10
MISS06	American Toad	ANAM	1742	112	28
MISS07	American Toad	ANAM	1830	109	27
MISS08	American Toad	ANAM	206	40	18
MISS09	American Toad	ANAM	15	0	0
MISS10	American Toad	ANAM	11	2	2
MISS01	American Bullfrog	LICAI	2	0	0
MISS02	American Bullfrog	LICAI	2	0	0
MISS03	American Bullfrog	LICAI	2	0	0
MISS04	American Bullfrog	LICAI	28	0	0
MISS05	American Bullfrog	LICAI	2	0	0
MISS06	American Bullfrog	LICAI	0	0	0
MISS07	American Bullfrog	LICAI	2	0	0
MISS08	American Bullfrog	LICAI	4	0	0
MISS09	American Bullfrog	LICAI	0	0	0
MISS10	American Bullfrog	LICAI	1	0	0

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
MISS01	Northern Leopard Frog	LIPIi	13	3	2
MISS02	Northern Leopard Frog	LIPIi	17	0	0
MISS03	Northern Leopard Frog	LIPIi	1591	46	20
MISS04	Northern Leopard Frog	LIPIi	151	1	1
MISS05	Northern Leopard Frog	LIPIi	746	0	0
MISS06	Northern Leopard Frog	LIPIi	49	0	0
MISS07	Northern Leopard Frog	LIPIi	12	0	0
MISS08	Northern Leopard Frog	LIPIi	1371	45	20
MISS09	Northern Leopard Frog	LIPIi	2	0	0
MISS10	Northern Leopard Frog	LIPIi	2	0	0
MISS01	Tree Frog	HYVE	2	0	0
MISS02	Tree Frog	HYVE	0	0	0
MISS03	Tree Frog	HYVE	2006	168	58
MISS04	Tree Frog	HYVE	1623	107	38
MISS05	Tree Frog	HYVE	1924	160	57
MISS06	Tree Frog	HYVE	0	0	0
MISS07	Tree Frog	HYVE	2784	142	59
MISS08	Tree Frog	HYVE	2700	130	53
MISS09	Tree Frog	HYVE	0	0	0
MISS10	Tree Frog	HYVE	0	0	0
MISS01	Green Frog	LICL	3361	195	56
MISS02	Green Frog	LICL	102	0	0
MISS03	Green Frog	LICL	2347	142	40
MISS04	Green Frog	LICL	8953	272	57
MISS05	Green Frog	LICL	150	2	1
MISS06	Green Frog	LICL	359	40	18
MISS07	Green Frog	LICL	122	0	0
MISS08	Green Frog	LICL	756	143	58
MISS09	Green Frog	LICL	13	0	0
MISS10	Green Frog	LICL	82	0	0
MISS01	Wood Frog	LISY	24	0	0
MISS02	Wood Frog	LISY	5	0	0
MISS03	Wood Frog	LISY	22	0	0
MISS04	Wood Frog	LISY	38	0	0
MISS05	Wood Frog	LISY	114	0	0
MISS06	Wood Frog	LISY	21	0	0
MISS07	Wood Frog	LISY	11	0	0
MISS08	Wood Frog	LISY	33	0	0
MISS09	Wood Frog	LISY	2	0	0
MISS10	Wood Frog	LISY	1	0	0
MISS01	Blanchard's Cricket Frog	ACCR3	194	0	0
MISS02	Blanchard's Cricket Frog	ACCR3	27	0	0
MISS03	Blanchard's Cricket Frog	ACCR3	51	0	0
MISS04	Blanchard's Cricket Frog	ACCR3	74	0	0
MISS05	Blanchard's Cricket Frog	ACCR3	123	0	0
MISS06	Blanchard's Cricket Frog	ACCR3	3	0	0
MISS07	Blanchard's Cricket Frog	ACCR3	627	34	17
MISS08	Blanchard's Cricket Frog	ACCR3	98	0	0
MISS09	Blanchard's Cricket Frog	ACCR3	0	0	0
MISS10	Blanchard's Cricket Frog	ACCR3	1	0	0
PIRO03	Wood Frog	LISY	313	50	11

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
PIRO04	Wood Frog	LISY	53	0	0
PIRO05	Wood Frog	LISY	131	0	0
PIRO06	Wood Frog	LISY	232	18	5
PIRO07	Wood Frog	LISY	145	12	3
PIRO08	Wood Frog	LISY	153	0	0
PIRO09	Wood Frog	LISY	177	10	3
PIRO10	Wood Frog	LISY	45	0	0
PIRO03	Boreal chorus frog	PSMA	151	0	0
PIRO04	Boreal chorus frog	PSMA	198	0	0
PIRO05	Boreal chorus frog	PSMA	281	0	0
PIRO06	Boreal chorus frog	PSMA	181	0	0
PIRO07	Boreal chorus frog	PSMA	181	0	0
PIRO08	Boreal chorus frog	PSMA	201	0	0
PIRO09	Boreal chorus frog	PSMA	265	0	0
PIRO10	Boreal chorus frog	PSMA	332	0	0
PIRO03	Spring Peeper	PSCR	7340	293	63
PIRO04	Spring Peeper	PSCR	6884	296	60
PIRO05	Spring Peeper	PSCR	11915	391	71
PIRO06	Spring Peeper	PSCR	7261	201	40
PIRO07	Spring Peeper	PSCR	16081	444	79
PIRO08	Spring Peeper	PSCR	4782	229	47
PIRO09	Spring Peeper	PSCR	14125	373	87
PIRO10	Spring Peeper	PSCR	19319	454	81
PIRO03	Northern Leopard Frog	LIPIi	246	0	0
PIRO04	Northern Leopard Frog	LIPIi	792	0	0
PIRO05	Northern Leopard Frog	LIPIi	198	0	0
PIRO06	Northern Leopard Frog	LIPIi	826	0	0
PIRO07	Northern Leopard Frog	LIPIi	2679	0	0
PIRO08	Northern Leopard Frog	LIPIi	370	0	0
PIRO09	Northern Leopard Frog	LIPIi	1678	0	0
PIRO10	Northern Leopard Frog	LIPIi	70	0	0
PIRO03	American Toad	ANAM	60	17	10
PIRO04	American Toad	ANAM	0	0	0
PIRO05	American Toad	ANAM	738	53	17
PIRO06	American Toad	ANAM	0	0	0
PIRO07	American Toad	ANAM	2	0	0
PIRO08	American Toad	ANAM	1087	67	22
PIRO09	American Toad	ANAM	611	62	27
PIRO10	American Toad	ANAM	32	9	5
PIRO03	American Bullfrog	LICAI	7	0	0
PIRO04	American Bullfrog	LICAI	20	0	0
PIRO05	American Bullfrog	LICAI	36	0	0
PIRO06	American Bullfrog	LICAI	3	0	0
PIRO07	American Bullfrog	LICAI	19	0	0
PIRO08	American Bullfrog	LICAI	43	0	0
PIRO09	American Bullfrog	LICAI	21	0	0
PIRO10	American Bullfrog	LICAI	25	0	0
PIRO03	Tree Frog	HYVE	542	25	16
PIRO04	Tree Frog	HYVE	43	8	5
PIRO05	Tree Frog	HYVE	1	0	0
PIRO06	Tree Frog	HYVE	5	0	0

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
PIRO07	Tree Frog	HYVE	1430	74	33
PIRO08	Tree Frog	HYVE	50	9	8
PIRO09	Tree Frog	HYVE	1196	51	26
PIRO10	Tree Frog	HYVE	2	0	0
PIRO03	Green Frog	LICL	2526	172	38
PIRO04	Green Frog	LICL	4202	239	51
PIRO05	Green Frog	LICL	8726	318	59
PIRO06	Green Frog	LICL	132	0	0
PIRO07	Green Frog	LICL	3625	263	55
PIRO08	Green Frog	LICL	6250	243	52
PIRO09	Green Frog	LICL	2951	178	42
PIRO10	Green Frog	LICL	4804	207	43
SLBE01	Spring Peeper	PSCR	216	67	32
SLBE02	Spring Peeper	PSCR	7593	338	71
SLBE03	Spring Peeper	PSCR	6960	210	40
SLBE04	Spring Peeper	PSCR	4647	225	45
SLBE05	Spring Peeper	PSCR	5045	262	52
SLBE06	Spring Peeper	PSCR	5984	323	66
SLBE07	Spring Peeper	PSCR	10225	328	65
SLBE08	Spring Peeper	PSCR	262	27	15
SLBE09	Spring Peeper	PSCR	5756	281	58
SLBE11	Spring Peeper	PSCR	1238	223	54
SLBE01	American Toad	ANAM	12	3	2
SLBE02	American Toad	ANAM	53	8	6
SLBE03	American Toad	ANAM	2	0	0
SLBE04	American Toad	ANAM	42	6	4
SLBE05	American Toad	ANAM	11	0	0
SLBE06	American Toad	ANAM	3	2	2
SLBE07	American Toad	ANAM	259	30	12
SLBE08	American Toad	ANAM	147	13	6
SLBE09	American Toad	ANAM	129	9	4
SLBE11	American Toad	ANAM	1830	94	29
SLBE01	Northern Leopard Frog	LIPIi	75	0	0
SLBE02	Northern Leopard Frog	LIPIi	1608	0	0
SLBE03	Northern Leopard Frog	LIPIi	3039	0	0
SLBE04	Northern Leopard Frog	LIPIi	343	0	0
SLBE05	Northern Leopard Frog	LIPIi	2687	0	0
SLBE06	Northern Leopard Frog	LIPIi	1676	0	0
SLBE07	Northern Leopard Frog	LIPIi	858	0	0
SLBE08	Northern Leopard Frog	LIPIi	339	0	0
SLBE09	Northern Leopard Frog	LIPIi	266	0	0
SLBE11	Northern Leopard Frog	LIPIi	1013	0	0
SLBE01	American Bullfrog	LICAI	12	0	0
SLBE02	American Bullfrog	LICAI	19	0	0
SLBE03	American Bullfrog	LICAI	6	0	0
SLBE04	American Bullfrog	LICAI	7	0	0
SLBE05	American Bullfrog	LICAI	39	0	0
SLBE06	American Bullfrog	LICAI	66	0	0
SLBE07	American Bullfrog	LICAI	66	0	0
SLBE08	American Bullfrog	LICAI	32	0	0
SLBE09	American Bullfrog	LICAI	73	0	0

Table 3: Summary of Recognizer Detections

Park Site	Species	Recognizer	Initial No. Detections ¹	No. Samples with Any Detections ²	No. Days with Any Detections ³
SLBE11	American Bullfrog	LICAI	12	0	0
SLBE01	Tree Frog	HYVE	16	9	7
SLBE02	Tree Frog	HYVE	702	65	30
SLBE03	Tree Frog	HYVE	1098	82	33
SLBE04	Tree Frog	HYVE	4	1	1
SLBE05	Tree Frog	HYVE	936	86	38
SLBE06	Tree Frog	HYVE	661	75	38
SLBE07	Tree Frog	HYVE	188	27	17
SLBE08	Tree Frog	HYVE	5	0	0
SLBE09	Tree Frog	HYVE	1	1	1
SLBE11	Tree Frog	HYVE	5	0	0
SLBE01	Green Frog	LICL	39	0	0
SLBE02	Green Frog	LICL	184	39	15
SLBE03	Green Frog	LICL	284	21	12
SLBE04	Green Frog	LICL	312	74	27
SLBE05	Green Frog	LICL	7353	257	61
SLBE06	Green Frog	LICL	11100	297	63
SLBE07	Green Frog	LICL	6634	300	71
SLBE08	Green Frog	LICL	1122	171	55
SLBE09	Green Frog	LICL	9420	325	80
SLBE11	Green Frog	LICL	225	0	0
SLBE01	Wood Frog	LISY	9	0	0
SLBE02	Wood Frog	LISY	116	39	14
SLBE03	Wood Frog	LISY	166	2	1
SLBE04	Wood Frog	LISY	88	0	0
SLBE05	Wood Frog	LISY	185	20	6
SLBE06	Wood Frog	LISY	238	4	2
SLBE07	Wood Frog	LISY	137	0	0
SLBE08	Wood Frog	LISY	55	0	0
SLBE09	Wood Frog	LISY	98	0	0
SLBE11	Wood Frog	LISY	22	0	0
SLBE01	Pickerel Frog	LIPAA	0	0	0
SLBE02	Pickerel Frog	LIPAA	1	0	0
SLBE03	Pickerel Frog	LIPAA	0	0	0
SLBE04	Pickerel Frog	LIPAA	2	0	0
SLBE05	Pickerel Frog	LIPAA	3	0	0
SLBE06	Pickerel Frog	LIPAA	3	0	0
SLBE07	Pickerel Frog	LIPAA	19	0	0
SLBE08	Pickerel Frog	LIPAA	0	0	0
SLBE09	Pickerel Frog	LIPAA	9	0	0
SLBE11	Pickerel Frog	LIPAA	28	0	0

1 - after filtering by time of day and other parameters such as call length or date. 2 - after filtering by first and last accurate detection, and removing duplicate detections per sample. 3 - after filtering by first and last accurate detection.

Table 4: Species Confirmed by Park (P = Present, A = Absent)*

Species	Recognizer File Complete?	Recognizer in Progress?	Comments	APIS	GRPO	INDU	ISRO	MISS	PIRO	SACN	SLBE	VOYA
American Toad	Yes	NA	Additional duration filter applies	P	P	P	P	P	P	P	P	P
Fowler's Toad	No	Yes	In progress	A	A	P	A	A	A	A	A	A
Blanchard's Cricket Frog	Yes	NA	Filters apply	A	A	P	A	p ¹	A	A	A	A
Cope's Gray Treefrog	Yes	NA	Treefrog recognizer does not distinguish between species	p ²	A	P	A	P	A	P	A	A
Gray Treefrog	Yes	NA	Treefrog recognizer does not distinguish between species	P	P	P	P	P	P	P	P	P
Spring Peeper	Yes	NA	Complete	P	P	P	P	p ³	P	P	P	P
Western Chorus Frog	Yes	NA	Chorus Frog recognizer does not distinguish between species	A	A	P	A	A	A ⁴	A	P	A
Boreal Chorus Frog	Yes	NA	Chorus Frog recognizer does not distinguish between species	p ³	P	A	P	P	A ⁴	P	A	P
American Bullfrog	Yes	Yes	Additional testing underway	A ⁵	A	P	A	A ⁵	A ⁵	P	P	A
Green Frog	Yes	NA	Complete	P	P	P	P	P	P	P	P	P
Mink Frog	No	Yes	In progress but prospects uncertain	P	P	A	P	A	p ⁵	P	A	A
Pickerel Frog	Yes	NA	Insufficient training data	A	A	A ³	A	A	A	P	P	A
Northern Leopard Frog	Yes	Yes	Additional testing underway	P	P	P	A	P	P	P	P	P
Wood Frog	Yes	NA	Complete	P	P	P	P	P	P	P	P	P

* - Note that all species are surveyed for in manual scans, but automated analyses are restricted to parks within a species potential range.

1 - Species confirmed within park in 2015.

2 - Acoustic voucher now available from APIS10.

3 - Apparently extirpated from park, but include in analyses in case it reappears.

4 - Records from park are rejected, without vouchers (Casper et al. 2015).

5 - Records from park are questionable, without vouchers.

Table 5: Assumed Breeding Periods by Park

Species	APIS	GRPO	INDU	ISRO	MISS	PIRO	SACN	SLBE	VOYA
Blanchard's Cricket Frog	absent	absent	5/15 - 8/15*	absent	5/15 - 8/15	absent	absent	absent	absent
Am. Toad	4/15 - 7/15	4/15 - 7/15	3/15 - 6/30	4/15 - 7/15	4/15 - 7/15	4/15 - 7/15	4/15 - 7/15	4/15 - 7/15	4/15 - 7/15
Fowler's Toad	absent	absent	3/15 - 6/30	absent	absent	absent	absent	4/15 - 7/15*	absent
Spring Peeper	3/15 - 6/30	4/1 - 6/30	3/1 - 5/31	4/1 - 6/30	3/15 - 5/31	4/1 - 6/30	3/15 - 6/15	3/15 - 6/15	4/1 - 6/30
Boreal Chorus Frog	3/15 - 5/31	4/1 - 5/31	absent	4/1 - 5/31	3/1 - 5/31	3/15 - 5/31*	3/15 - 5/31	absent	4/1 - 5/31
W. Chorus Frog	absent	absent	3/1 - 5/15	absent	absent	3/15 - 5/31*	absent	3/15 - 5/31	absent
Cope's Gray Treefrog	5/1 - 7/15	absent	4/15 - 7/15	absent	4/15 - 7/15	5/1 - 7/15*	4/15 - 7/15	5/1 - 7/15*	5/1 - 7/15*
Gray Treefrog	5/1 - 7/15	5/1 - 7/15	4/15 - 7/15	5/1 - 7/15	4/15 - 7/15	5/1 - 7/15	4/15 - 7/15	5/1 - 7/15	5/1 - 7/15
Am. Bullfrog	5/15 - 8/15*	absent	5/15 - 8/15	absent	5/15 - 8/15*	5/15 - 8/15*	5/15 - 8/15	5/15 - 8/15	absent
Green Frog	5/15 - 8/15	5/15 - 8/15	5/1 - 8/15	5/15 - 8/15	5/1 - 8/15	5/15 - 8/15	5/1 - 8/15	5/15 - 8/15	5/15 - 8/15
Pickerel Frog	absent	absent	absent	absent	absent	absent	4/1 - 5/31	4/1 - 5/31	absent
No. Leopard Frog	4/1 - 5/31	4/1 - 5/31	3/1 - 5/31	3/1 - 5/31*	3/15 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31
Mink Frog	6/1 - 8/15	6/1 - 8/15	absent	6/1 - 8/15	absent	6/1 - 8/15	6/1 - 8/15	absent	6/1 - 8/15*
Wood Frog	3/15 - 5/15	4/1 - 6/1	3/1 - 5/15	4/1 - 6/1	3/1 - 5/15	3/15 - 5/15	3/15 - 5/15	3/15 - 5/15	4/1 - 6/1

Note: These dates are based on Michigan, Minnesota and Wisconsin calling frog survey program phenology charts, and local knowledge. They can be revised as new empirical data are acquired. * - Indicates species currently presumed absent in park but could potentially colonize in future from nearby populations.

Table 6: 2015 Data Collection Results

Site	Date & Time of First Recorded Sample	Date & Time of First Valid Sample ¹	Date & Time of Last Recorded Sample	Number of invalid or missing samples within sampling period ²	N Expected Sample Days ³	N Expected Samples ⁴	N Actual Sample Days ⁵	N Actual Samples ⁶	Success Rate Days ⁷	Success Rate Samples ⁸	Known Issues Affecting Success Rate
APIS01	4/16/2015 12:00	4/16/2015 12:00	8/17/2015 12:00	0	107	1390	107	1390	1.00	1.00	
APIS02	4/16/2015 12:00	4/16/2015 12:00	9/16/2015 00:00	10	107	1390	107	1380	1.00	0.99	
APIS03	4/25/2015 12:00	4/27/2015 15:00	8/19/2015 13:00	0	96	1244	96	1244	1.00	1.00	
APIS04	4/28/2015 12:00	4/28/2015 12:00	9/14/2015 09:10	0	95	1234	95	1234	1.00	1.00	
APIS05	4/17/2015 12:00	4/17/2015 12:00	9/22/2015 12:15	0	106	1587	106	1587	1.00	1.00	
APIS06	4/18/2015 12:00	4/18/2015 12:00	9/22/2015 11:35	0	105	1364	105	1364	1.00	1.00	
APIS07	4/18/2015 12:00	4/18/2015 12:00	9/14/2015 12:06	13	105	1364	104	1351	0.99	0.99	Data collection ended 7/30/15
APIS08	4/28/2015 12:00	4/28/2015 12:00	9/14/2015 09:35	0	95	1422	95	1422	1.00	1.00	
APIS10	4/28/2015 12:00	4/28/2015 12:00	9/14/2015 13:00	0	95	1234	95	1234	1.00	1.00	
APIS11	4/27/2015 14:00	4/27/2015 14:00	9/15/2015	0	94	1405	94	1405	1.00	1.00	
GRPO02	5/14/2015 12:00	5/14/2015 12:00	8/20/2015 00:00	0	79	1026	79	1026	1.00	1.00	
GRPO03	5/13/2015 12:00	5/13/2015 12:00	8/21/2015 00:00	0	80	1039	80	1039	1.00	1.00	
GRPO04	5/13/2015 12:00	5/13/2015 12:00	8/21/2015 12:00	0	80	1039	80	1039	1.00	1.00	
GRPO05	5/13/2015 12:00	5/13/2015 12:00	8/21/2015 00:00	0	80	1039	80	1039	1.00	1.00	
GRPO06	5/13/2015 12:00	5/13/2015 12:00	8/21/2015 12:00	18	80	1039	80	1021	1.00	0.98	
GRPO07	5/9/2015 12:00	5/14/2015 15:00	8/20/2015 00:00	0	79	1026	79	1026	1.00	1.00	
INDU01	3/18/2015 12:00	4/1/2015 12:00	6/25/2015 21:00	543	86	1287	50	744	0.58	0.58	Battery failure + no mid-season check
INDU02	3/18/2015 12:00	4/2/2015 16:00	7/4/2015 00:00	419	94	1403	67	984	0.71	0.70	Battery failure + no mid-season check
INDU03	3/18/2015 12:00	4/3/2015 13:00	7/7/2015 17:00	366	96	1436	72	1070	0.75	0.75	Battery failure + no mid-season check
INDU04	3/18/2015 12:00	3/18/2015 15:00	6/19/2015 00:00	645	94	1404	52	759	0.55	0.54	Battery failure + no mid-season check
INDU05	3/18/2015 12:00	4/1/2015 15:00	7/13/2015 00:00	284	104	1554	86	1270	0.83	0.82	Battery failure + no mid-season check
INDU06	3/18/2015 12:00	4/2/2015 15:00	7/4/2015 00:00	419	94	1404	67	985	0.71	0.70	Battery failure + no mid-season check
INDU07	3/18/2015 12:00	4/1/2015 15:00	7/6/2015 20:00	379	97	1449	72	1070	0.74	0.74	Battery failure + no mid-season check
INDU08	3/18/2015 12:00	4/2/2015 01:00	7/9/2015 23:00	330	99	1484	77	1154	0.78	0.78	Battery failure + no mid-season check
INDU09	3/18/2015 12:00	4/1/2015 14:00	7/8/2015 00:00	359	99	1480	76	1121	0.77	0.76	SM tree fell over; SM submerged
INDU10	3/18/2015 12:00	4/1/2015 14:00	7/6/2015 00:00	389	97	1450	72	1061	0.74	0.73	Battery failure + no mid-season check
ISRO01	5/17/15 12:00	5/17/15 12:00	7/22/2015 00:00	686	76	987	53	301	0.70	0.30	Battery failure + no mid-season check
ISRO02	5/20/15 12:00	5/20/15 12:00	7/31/2015 00:00	12	73	948	73	936	1.00	0.99	Data collection ended a few hours early
ISRO03	5/20/15 12:00	5/20/15 12:00	7/31/2015 13:00	11	73	948	76	937	1.04	0.99	Data collection ended a few hours early
ISRO04	5/17/15 12:00	5/17/15 12:00	8/12/2015 15:00	711	76	987	22	276	0.29	0.28	Battery failure; unit redeployed in July
ISRO05	6/24/15 12:00	6/24/15 12:00	7/30/2015 19:00	17	38	493	37	476	0.97	0.97	Data collection ended a day early
ISRO06	5/19/15 12:00	5/19/15 12:00	7/31/2015 14:00	9	74	961	74	952	1.00	0.99	Data collection ended a few hours early
ISRO07	6/05/15 12:00	6/05/15 12:00	9/2/2015 00:00	0	57	740	57	740	1.00	1.00	
ISRO08	5/17/15 12:00	5/17/15 12:00	8/15/2015 13:00	0	76	987	76	987	1.00	1.00	
ISRO09	6/4/15 12:00	6/4/15 12:00	7/30/2015 20:00	16	58	753	57	737	0.98	0.98	Data collection ended a day early
ISRO10	5/16/15 12:00	5/16/15 12:00	8/13/2015 00:00	0	77	1000	77	1000	1.00	1.00	
MISS01	4/18/2015 12:00	4/18/2015 12:00	8/2/2015 22:00	0	105	1572	105	1572	1.00	1.00	
MISS02	4/9/2015 12:00	4/9/2015 12:00	7/22/2015 20:00	138	114	1707	105	1569	0.92	0.92	Data collection ended early
MISS03	4/8/2015 12:00	4/8/2015 12:00	7/28/2015 20:00	48	115	1722	112	1674	0.97	0.97	Data collection ended early
MISS04	4/9/2015 12:00	4/9/2015 12:00	9/7/2015 20:00	0	114	1707	114	1707	1.00	1.00	
MISS05	4/16/2015 12:00	4/16/2015 12:00	8/18/2015 20:00	0	107	1602	107	1602	1.00	1.00	
MISS06	4/11/2015 12:00	4/11/2015 12:00	6/29/2015 16:00	487	112	1677	80	1190	0.71	0.71	SM unit failed (possibly battery)
MISS07	4/16/2015 12:00	4/16/2015 12:00	8/6/2015 23:00	0	107	1602	107	1602	1.00	1.00	
MISS08	4/9/2015 12:00	4/9/2015 12:00	8/16/2015 23:00	0	114	1707	114	1707	1.00	1.00	

Table 6: 2015 Data Collection Results

Site	Date & Time of First Recorded Sample	Date & Time of First Valid Sample ¹	Date & Time of Last Recorded Sample	Number of invalid or missing samples within sampling period ²	N Expected Sample Days ³	N Expected Samples ⁴	N Actual Sample Days ⁵	N Actual Samples ⁶	Success Rate Days ⁷	Success Rate Samples ⁸	Known Issues Affecting Success Rate
MISS09	4/10/2015 12:00	4/10/2015 12:00	4/23/2015 00:00	1501	113	1692	13	191	0.12	0.11	SM unit failed - reason unknown
MISS10	4/10/2015 12:00	4/10/2015 12:00	7/28/2015 22:00	46	113	1692	110	1646	0.97	0.97	Data collection ended early
PIRO02	5/4/2015 10:45	NA	8/26/2015 09:22	1420	89	1420	0	0	0.00	0.00	SM unit failed completely - replacement failed as well
PIRO03	4/28/2015 12:00	4/28/2015 12:00	8/25/2015 10:05	0	95	1516	95	1516	1.00	1.00	
PIRO04	5/05/15 12:00	5/05/15 12:00	8/26/2015 10:40	12	88	1404	88	1392	1.00	0.99	CH 1 mic damaged on 7/20 - lost data for half of a day
PIRO05	4/27/2015 12:00	4/27/2015 12:00	8/25/2015 09:15	0	96	1532	96	1532	1.00	1.00	
PIRO06	4/30/2015 12:00	4/30/2015 12:00	8/25/2015 14:12	0	93	1484	93	1484	1.00	1.00	
PIRO07	4/30/2015 12:00	4/30/2015 12:00	8/26/2015 14:02	0	93	1484	93	1484	1.00	1.00	
PIRO08	4/30/2015 12:00	4/30/2015 12:00	8/26/2015 12:16	0	93	1484	93	1484	1.00	1.00	
PIRO09	4/30/2015 12:00	4/30/2015 12:00	8/25/2015 12:39	115	93	1484	93	1369	1.00	0.92	SM failed on some afternoons, but restarted the next day at noon
PIRO10	4/29/2015 12:00	4/29/2015 12:00	7/19/2015 21:00	194	94	1500	82	1306	0.87	0.87	Battery failure
SLBE01	4/20/2015 12:00	4/20/2015 12:00	8/21/2015 11:20	0	103	1338	103	1338	1.00	1.00	
SLBE02	4/18/2015 12:00	4/18/2015 12:00	8/21/2015 09:29	0	105	1572	105	1572	1.00	1.00	
SLBE03	4/19/2015 12:00	4/19/2015 12:00	8/25/2015 12:01	0	104	1557	104	1557	1.00	1.00	
SLBE04	4/21/2015 12:00	4/21/2015 12:00	7/20/2015 23:00	165	102	1527	91	1362	0.89	0.89	
SLBE05	4/17/2015 12:00	4/17/2015 12:00	8/21/2015 10:25	0	106	1587	106	1587	1.00	1.00	
SLBE06	4/18/2015 12:00	4/18/2015 12:00	8/25/2015 09:35	0	105	1572	105	1572	1.00	1.00	
SLBE07	4/18/2015 12:00	4/18/2015 12:00	8/21/2015 12:10	1	105	1572	105	1571	1.00	1.00	
SLBE08	4/26/2015 12:00	4/26/2015 12:00	8/25/2015 13:42	0	97	1452	97	1452	1.00	1.00	
SLBE09	4/18/2015 12:00	4/18/2015 12:00	8/21/2015 12:52	1	105	1572	105	1571	1.00	1.00	
SLBE11	4/28/2015 12:00	4/28/2015 12:00	8/26/2015 15:00	0	95	1422	95	1422	1.00	1.00	

¹This was typically the deployment day, but may have been a day or two after, depending on when the program was scheduled to start.

²Sampling period is defined as the time between the first valid sample and July 31. For this analysis, invalid samples are those that did not contain data.

³Number of days from date of first valid sample to July 31

⁴Number of expected sample days multiplied by 13 (number of samples collected per day if sampling ended at 0000) or 15 (if sampling ended at 0200). If the first sample was recorded at 12:00, then 1 or 3 was subtracted from the total.

⁵Number of days from date of first valid sample to date of last recorded sample within the sampling period.

⁶Actual number of sample days multiplied by 13, and subtracting any invalid samples, as well as any samples not collected prior to the first valid sample or after the last recorded sample within the sampling period.

⁷N Actual Days / N Expected Days

⁸N Actual Samples / N Expected Samples

NOTE: PIRO collected 16 samples per day, but only 13 were considered for our analyses.

Table 7: 2015 Detection Results by Site

Site	N Days	N Samples	Wood	Peeper	Western Chorus	Boreal Chorus	Am. Toad	Fowlers	Leopard	Pickerel	Gray Treefrog	Copes	Cricket	Green	Mink	Bull	N Sp. Detected
APIS01	107	1390		RM	A		RM	A		A	RM		A	RM			4
APIS02	107	1380	M	RM	A		M	A		A	RM		A	RM			5
APIS03	96	1244		RM	A		RM	A		A			A	RM			3
APIS04	95	1234	RM	RM	A		RM	A		A			A	RM			4
APIS05	106	1587		RM	A		RM	A		A	RM		A	RM			4
APIS06	105	1364	M	RM	A		RM	A		A	RM		A	M			5
APIS07	104	1351	RM	RM	A		RM	A		A	RM		A	RM			5
APIS08	95	1422	RM	RM	A		RM	A		A			A				3
APIS10	95	1234	RM	RM	A		RM	A		A	RM	M	A	RM			6
APIS11	94	1405		RM	A		RM	A		A			A	RM			3
GRPO02*	0	0			A			A		A		A	A			A	
GRPO03	80	1039		RM	A			A		A	RM	A	A			A	2
GRPO04	80	1039		RM	A		M	A		A	RM	A	A			A	3
GRPO05	80	1039		RM	A		RM	A		A	RM	A	A	R		A	4
GRPO06	80	1021		RM	A		RM	A		A	M	A	A	RM		A	4
GRPO07	79	1026		M	A			A		A		A	A			A	1
INDU01	50	744		RM	RM	A	RM			A	RM				A		4
INDU02	67	984		RM	RM	A	RM		RM	A	RM			RM	A		6
INDU03	72	1070		RM	RM	A	RM			A	RM			RM	A	M	6
INDU04	52	759		RM	RM	A	M			A	M				A		4
INDU05	86	1270	RM	RM	RM	A	RM			A	RM			RM	A		6
INDU06	67	985		RM		A	RM			A	RM			RM	A		4
INDU07	72	1070	M	RM	RM	A	RM		M	A	RM	M		RM	A		8
INDU08	77	1154		RM		A	RM		RM	A	RM			RM	A		5
INDU09	76	1121	RM	RM	RM	A	RM		RM	A	RM			RM	A	RM	8
INDU10	72	1061	RM	RM	RM	A			RM	A	RM			RM	A		6
ISRO01	53	301		RM	A		M	A		A		A	A	RM		A	3
ISRO02	73	936		RM	A		R	A		A		A	A	RM		A	3
ISRO03	76	937		RM	A		RM	A		A		A	A	RM		A	3
ISRO04	22	276		RM	A			A		A		A	A	RM		A	2
ISRO05	37	476	X	RM	A	X		A	X	A		A	A	RM		A	2
ISRO06	74	952		RM	A			A		A		A	A	RM		A	2
ISRO07	57	740	X	RM	A	X		A	X	A		A	A	RM		A	2
ISRO08	76	987		RM	A		RM	A		A		A	A	RM		A	3
ISRO09	57	737	X	RM	A	X	RM	A	X	A		A	A	M		A	3
ISRO10	77	1000		RM	A	RM		A		A		A	A			A	2
MISS01	105	1572			A		RM	A	RM	A		M		RM	A		4
MISS02	105	1569			A		RM	A		A	M				A		2
MISS03	112	1674			A		RM	A	RM	A	RM			RM	A		4
MISS04	114	1707			A		RM	A	RM	A	RM			RM	A		4
MISS05	107	1602			A	RM	R	A	M	A	RM	M		R	A		6
MISS06	80	1190			A		RM	A	RM	A				RM	A		3
MISS07	107	1602			A	RM	RM	A	M	A	RM		RM		A		5
MISS08	114	1707			A		R	A	RM	A	RM			RM	A		4

Table 7: 2015 Detection Results by Site

Site	N Days	N Samples	Wood	Peeper	Western Chorus	Boreal Chorus	Am. Toad	Fowlers	Leopard	Pickerel	Gray Treefrog	Copes	Cricket	Green	Mink	Bull	N Sp. Detected
MISS09	13	191			A			A	M	A					A		1
MISS10	110	1646			A		R	A	M	A		M			A		3
PIRO01**	0	0			A			A		A			A				
PIRO02***	0	0			A			A		A			A				
PIRO03	95	1516	RM	RM	A		R	A		A	RM		A	RM			5
PIRO04	88	1392		RM	A			A		A	RM		A	RM			3
PIRO05	96	1532		RM	A		RM	A		A			A	RM			3
PIRO06	93	1484	RM	RM	A			A		A			A	M			3
PIRO07	93	1484	RM	RM	A			A		A	RM		A	RM			4
PIRO08	93	1484		RM	A		RM	A		A	RM		A	RM			4
PIRO09	93	1369	RM	RM	A		RM	A		A	RM		A	RM			5
PIRO10	82	1306		RM	A		R	A		A	M		A	RM			4
SLBE01	103	1338		RM		A	RM				RM		A	M	A		4
SLBE02	105	1572	RM	RM		A	RM				RM		A	RM	A		5
SLBE03	104	1557	RM	RM		A					RM		A	RM	A		4
SLBE04	91	1362		RM		A	R				RM		A	RM	A		4
SLBE05	106	1587	RM	RM		A					RM		A	RM	A		4
SLBE06	105	1572	RM	RM		A	RM				RM		A	RM	A		5
SLBE07	105	1571		RM		A	RM				RM		A	RM	A		4
SLBE08	97	1452		RM		A	RM				M		A	RM	A		4
SLBE09	105	1571		RM		A	RM				RM		A	RM	A		4
SLBE11	95	1422		RM		A	RM						A		A		2

Blank cells mean that no detections were obtained by any method. R = Detected by recognizers, M = Detected by manual scan, RM = Detected by both recognizer and manual scan, X = Insufficient valid samples were obtained during species breeding season, A = Considered absent from park and not detected by manual surveys (automated scanning not performed), N Days = Total number of valid days sampled, N = Total number of valid samples for site (no later than July 31). Note that N Species Possible does not account for wetland type and assumes all species known from a park could be present in any wetland. Species were not counted in the N Species Possible column if there were not any samples collected within the known breeding period.

* - site invalid due to loud background noise - replace. ** - data not supplied. *** - unit failed.

Table 8: 2013 False Presence Rates (APIS and MISS added; bolded values are 0.10 or greater)

Park	Species	N Sites With Detections	N Random Detections Evaluated	N Correct	False Presence Rate
APIS	Am. Toad	4	37	37	0.00
MISS	Am. Toad	3	30	27	0.10
PIRO	Am. Toad	7	57	55	0.04
SLBE	Am. Toad	2	13	11	0.15
APIS	Gray Treefrog	3	21	20	0.05
PIRO	Gray Treefrog	5	20	19	0.05
SLBE	Gray Treefrog	2	6	6	0.00
APIS	Green Frog	1	10	8	0.20
MISS	Green Frog	1	10	9	0.10
PIRO	Green Frog	5	50	49	0.02
SLBE	Green Frog	3	15	15	0.00
APIS	Spring Peeper	5	50	50	0.00
INDU	Spring Peeper	7	64	62	0.03
MISS	Spring Peeper	0	NA	NA	NA
PIRO	Spring Peeper	10	100	98	0.02
SLBE	Spring Peeper	3	29	27	0.07
Combined	Am. Toad	16	137	130	0.05
Combined	Gray Treefrog	10	47	45	0.04
Combined	Green Frog	10	85	81	0.05
Combined	Spring Peeper	25	243	237	0.02

Table 9: 2014 False Presence Rates (bolded values are 0.10 or greater)

Park	Species	N Sites With Detections	N Random Detections Evaluated	N Correct	False Presence Rate	Possible reasons
APIS	Am. Toad	8	161	145	0.10	Loud waves/wind
INDU	Am. Toad	6	51	22	0.57	Loud train noise
MISS	Am. Toad	5	41	41	0.00	
PIRO	Am. Toad	4	69	67	0.03	
SLBE	Am. Toad	8	67	55	0.18	Spring peeper or tree frog choruses
INDU	Am. Bullfrog	1	7	4	0.43	Loud site
APIS	Gray Treefrog	3	27	26	0.04	
INDU	Gray Treefrog	10	78	77	0.01	
MISS	Gray Treefrog	1	32	31	0.03	
PIRO	Gray Treefrog	3	30	29	0.03	
SLBE	Gray Treefrog	9	65	65	0.00	
APIS	Green Frog	8	80	77	0.04	
INDU	Green Frog	7	62	60	0.10	Loud train noise
MISS	Green Frog	2	20	19	0.05	
PIRO	Green Frog	6	57	56	0.02	
SLBE	Green Frog	8	69	65	0.06	
APIS	Spring Peeper	9	91	90	0.01	
INDU	Spring Peeper	10	100	95	0.05	
MISS	Spring Peeper	0	NA	NA	NA	
PIRO	Spring Peeper	9	90	84	0.07	
SLBE	Spring Peeper	9	91	80	0.12	Loud background (flowing/splashing water, birds)
Combined	Am. Toad	31	389	330	0.15	Loud background/ start and stop in calling
Combined	Gray Treefrog	26	232	228	0.02	
Combined	Green Frog	31	288	277	0.04	
Combined	Spring Peeper	37	372	349	0.06	

Table 10: 2015 False Presence Rates (bolded values are 0.10 or greater)

Park	Species	N Sites With Detections	N Detections Evaluated^	N Correct	False Presence Rate	Possible reasons
MISS	Cricket Frog	1	34	30	0.12	
APIS	Am. Toad	9	90	85	0.06	
GRPO	Am. Toad	2	11	11	0.00	
INDU	Am. Toad	9	68	66	0.03	
ISRO	Am. Toad	4	21	20	0.05	
MISS	Am. Toad	8	80	61	0.24	chorus frogs; loud background
PIRO	Am. Toad	5	49	44	0.10	
SLBE	Am. Toad	8	58	51	0.12	
INDU	Am. Bullfrog	2	30	10	0.67	loud site; bullfrogs do not call consistently
APIS	Gray Treefrog	6	57	57	0.00	
GRPO	Gray Treefrog	3	6	6	0.00	
INDU	Gray Treefrog	9	68	66	0.03	
MISS	Gray Treefrog	5	50	50	0.00	
PIRO	Gray Treefrog	5	47	45	0.04	
SLBE	Gray Treefrog	8	61	60	0.02	
APIS	Green Frog	8	80	75	0.06	
GRPO	Green Frog	2	11	11	0.00	
INDU	Green Frog	8	80	62	0.23	loud background, train
ISRO	Green Frog	8	80	68	0.15	background noise
MISS	Green Frog	6	52	44	0.15	loud background
PIRO	Green Frog	7	70	68	0.03	
SLBE	Green Frog	8	80	63	0.21	background noise
INDU	Leopard Frog	4	30	28	0.07	
MISS	Leopard Frog	3	67	38	0.43	train, background noises
APIS	Wood Frog	4	143	101	0.29	background noise
INDU	Wood Frog	3	121	101	0.17	background; microphone, chorus
PIRO	Wood Frog	4	90	69	0.23	background, spring peeper
SLBE	Wood Frog	4	65	36	0.45	background, spring peeper
APIS	Spring Peeper	10	100	100	0.00	
GRPO	Spring Peeper	5	50	38	0.24	
INDU	Spring Peeper	10	100	91	0.09	
ISRO	Spring Peeper	10	95	81	0.15	Could improve if filtered by 2100, or by limiting call season
PIRO	Spring Peeper	8	80	75	0.06	
SLBE	Spring Peeper	10	100	90	0.10	
Combined	Am. Toad	45	377	338	0.10	Loud background/ start and stop in calling
Combined	Gray Treefrog	36	289	284	0.02	
Combined	Green Frog	47	453	391	0.14	
Combined	Spring Peeper	53	525	475	0.10	

NOTE: Most of the detections evaluated had been randomly selected. For LISY, all of the detections were evaluated.

Table 11: Combined 2013-15 False Presence Rates (bolded values are 0.10 or greater)

Park	Species	N Detections Evaluated	N Correct	False Presence Rate
Combined	Cricket Frog	NA	NA	NA
Combined	Am. Toad	903	798	0.12
Combined	Gray Treefrog	568	557	0.02
Combined	Green Frog	826	749	0.09
Combined	Leopard Frog	97	66	0.32
Combined	Wood Frog	419	307	0.27
Combined	Spring Peeper	1140	1061	0.07