



Land Use

RESOURCE BRIEF

Importance

Land use is the human use of landscapes, such as agriculture, and residential and other development. Changes in housing density, and associated roads, can fragment the landscape, decrease the size of the functional ecosystem, reduce connectivity among native habitat patches, isolate species in small patches, and increase the contrast in vegetation along park boundaries. Such changes outside park boundaries can have major implications to structural and functional ecosystem properties including fire frequency, species distributions, water quality, air quality, habitat fragmentation, soil erosion, and introduction of exotic species.

Status and Trend

Approximately 67% of the land within the Greater Yellowstone Area is public land managed by federal agencies. The USDA Forest Service alone manages nearly 50% of the area while the National Park Service manages roughly 10%. Private lands make up nearly 30% of the area with the remainder of the lands under Native American, state, or local management (1).

Population in the Greater Yellowstone Area was sparse at the turn of the 20th century and has been steadily increasing

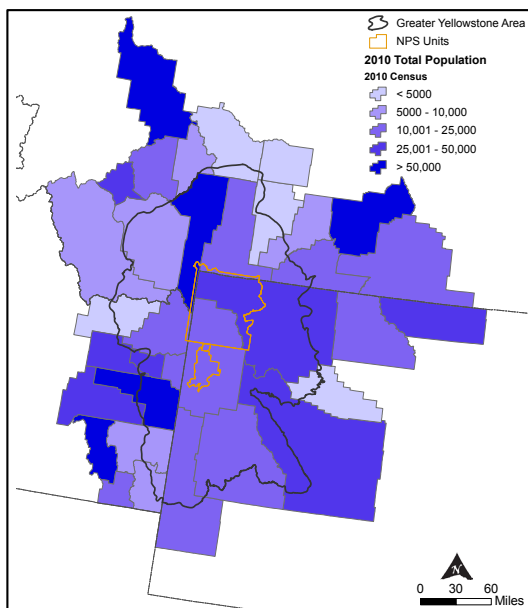


Figure 1. Human population of the 34 counties in and surrounding the Greater Yellowstone Area.



Residential development near the Bridger Mountains.

since 1970. From 1990 to 2010, the population of the 34 counties in and surrounding the Greater Yellowstone Area grew by nearly 35% to over 930,000 residents (Figure 1; 2, 3). From 1990 to 2010, the population of census block groups in and near the GYA nearly 50% from approximately 220,000 to roughly 323,000 (2, 3). Growth within the census block groups was higher than the regional average. Much of the growth occurred as rural home development in subdivisions with one home per 0.4-16.2 hectares as shown in the photo above. The area of rural lands taken up by such subdivisions increased by 350% from 1970 to 1999 (4). Agriculture continues to be a significant human use of the landscape, with 2% to 96% of the land area in the 34 counties classified as farmland (5).

Discussion

Private lands in the Greater Yellowstone Area typically occupy valley bottoms in contrast to public lands, which are more often located at relatively high elevations. Numerous species of birds, mammals, and amphibians rely upon the resources found in the valley bottoms and reside in these areas seasonally or year round (6). Residential development can erode the quality of valley bottom and floodplain habitat. In addition, the spatial configuration of residential development, and associated fences and roads, may create a barrier along migration corridors and fragment landscapes. Elk, moose, pronghorn antelope, and mule deer may be particularly affected by fragmentation because they annually winter on private lands (7). While relatively little of pronghorn antelope and moose range are projected to be impacted by residential development over the next 10 years, development may more significantly affect movement corridors, riparian habitats, and bird hotspots (7).

Citations

(1) USGS 2011 (2) US Census Bureau 2011 (3) NPS 2010 (4) Gude et al. 2006. *Landscape and Urban Planning* 77:131-151. (5) NASS 2007 (6) Hansen et al. 2002. *BioScience* 52: 151-168. (7) Gude et al. 2007 *Ecological Applications* 17:1004-1018.