

Although there are no accurate or agreed-upon estimates of the number of resident Canada lynx (*Lynx canadensis*) in Montana, northwestern Montana has a long and continuous history of lynx occurrence and evidence of reproduction (McKelvey *et al.* 2000, pp. 224-225; Squires and Laurion 2000, pp. 346-348; Squires *et al.* 2008, entire; Squires *et al.* 2013, entire; Interagency Lynx Biology Team 2013, p. 57; 65 FR 16058; 68 FR 40090; 74 FR 8643; 79 FR 54825), and it is thought to support the highest density lynx populations in the Northern Rocky Mountain region of the lynx's range (74 FR 8643; 79 FR 54825). Part of southwestern Montana, north of Yellowstone National Park, is considered part of the Greater Yellowstone Ecosystem (GYE), most of which occurs in northwestern Wyoming. The GYE is also thought to support a historically and currently persistent but much smaller lynx population (McKelvey *et al.* 2000, p. 230; Squires and Laurion 2000, pp. 346-348; Murphy *et al.* 2006, entire; Interagency Lynx Biology Team 2013, p. 57; 72 FR 1189; 74 FR 8643-8644; 79 FR 54825-54826).

The Service recently designated 12,126 square miles (mi²; 31,405 square kilometers [km²]) of critical habitat for lynx in Montana (79 FR 54782, 54824). This represents almost a third (31.1 percent) of the range-wide critical habitat designation for the contiguous U.S. distinct population segment (DPS) of the lynx. The designation included 9,738 mi² (25,221 km²) in northwestern Montana and 2,388 mi² (6,185 km²) in the southwestern Montana portion of the GYE (Table 1). In the northwestern portion, another 641 mi² (1,660 km²) of habitat capable of supporting lynx was excluded from critical habitat because it is managed in accordance with Tribal or State lynx conservation plans (Confederated Salish and Kootenai Tribes 2000, entire; 2014, entire; Montana Department of Natural Resources and Conservation and U.S. Fish and Wildlife Service 2010a, entire; 2010b, entire; 2010c, entire; 79 FR 54828).

Table 1. Designated Canada Lynx Critical Habitat in Montana by Unit and Ownership.

Ownership	Square Miles of Designated Critical Habitat in Montana (km ² ; percent)		
	All MT CH	Unit 3 – Northern Rocky Mountains ¹	Unit 5 – Greater Yellowstone Area
Federal	10,978 (28,433; 90.5%)	8,743 (22,644; 89.8%)	2,235 (5,789; 93.6%)
State	168 (437; 1.4%)	156 (404; 1.6%)	12 (33; 0.5%)
Private	979 (2,535; 8.1%)	839 (2,172; 8.6%)	140 (363; 5.9%)
Total	12,126 (31,405)	9,738 (25,220; 80.3%)	2,388 (6,185; 19.7%)

¹An additional 641 mi² (1,660 km²) of habitat in northwestern Montana on the Confederated Salish and Kootenai Tribes Flathead Indian Reservation (370 mi²; 957 km²) and on forested lands managed by the Montana Department of Natural Resources and Conservation (271 mi²; 703 km²) meet the criteria for critical habitat but were excluded from the final designation.

Based on estimated annual home range sizes of 44 mi² (115 km²) and 91 mi² (238 km²) for female and male lynx, respectively, in northwestern Montana (Squires and Laurion 2000, p. 344), the 10,379 mi² (26,881 km²) of designated critical habitat and excluded State and Tribal lands in northwestern Montana theoretically could support 236 female home ranges or 114 male

home ranges, or about 154 total home ranges assuming a 1:1 sex ratio (Shenk 2008, p. 11; Vashon *et al.* 2008, p. 1483) and discrete home ranges (but see below). Similarly, applying estimated annual home range sizes for lynx in the west-central portion of the GYE (44 mi² [114 km²] for females, 53 mi² [137 km²] for males; Squires and Laurion 2000, p. 344), the 2,388 mi² (6,185 km²) of designated critical habitat in the southwestern Montana portion of the GYE could theoretically support 54 female home ranges or 45 male home ranges, or about 49 total home ranges.

However, the home range estimates provided above for northwestern Montana are based on telemetry data for only four males and two females, while those for the GYE are based on telemetry data from a single female and a single male in the Wyoming Range. The reported home range size estimates for both areas were thought by the authors to underestimate true home range sizes (Squires and Laurion 2000, p. 347). It also is unlikely that all potential home ranges in Montana are occupied by resident lynx in all years. Because of marginal or inadequate snowshoe hare (*Lepus americanus*) densities in some areas in some years, some home ranges may be substantially larger and some potential home ranges may be vacant. Further, the marginal and patchy nature of most lynx habitat in the GYE (68 FR 40090; 74 FR 8644; 79 FR 54791, 54826), the correspondingly lower hare densities (Hodges *et al.* 2009, entire), and the relatively few verified historical lynx records (McKelvey *et al.* 2000, pp. 224-225, 229-230; Murphy *et al.* 2006, entire; 65 FR 16058; 79 FR 54791), all suggest that lynx naturally occur at very low densities in the GYE, and home ranges there are thought to be substantially larger than in most other parts of the DPS range (74 FR 8644; 79 FR 54791, 54826).

Conversely, there is often overlap among adjacent lynx home ranges, with male home ranges normally overlapping those of one to three females, and juvenile home ranges often overlapping those of adults (Aubry *et al.* 2000, p. 385), and home ranges could be smaller in areas or years with higher hare densities. Additionally, although there are no other known populations of resident lynx in Montana outside the areas described above, small numbers of lynx are known or suspected to occupy home ranges in adjacent areas in some years (e.g., Gehman *et al.* 2011, p. 11-13). Therefore, in years with high landscape-level hare densities, Montana could potentially support more lynx home ranges than calculated above.

Finally, most forested areas of western Montana outside the areas described above are considered secondary areas for lynx (U.S. Fish and Wildlife Service 2005, pp. 3-6, 20-21), where dispersing or transient lynx may occur intermittently but regularly, especially during irruptions after declines in hare populations cause lynx to abandon home ranges elsewhere in search of food (McKelvey *et al.* 2000, pp. 224-225; Mowat *et al.* 2000, pp. 290-294; 68 FR 40090; 79 FR 54818-54820). These secondary areas are thought to support lynx only temporarily, and hare densities are likely inadequate to support long-term survival of individual lynx or a lynx population over time (79 FR 54818-54820).

Based on the information presented above, designated critical habitat and other habitats capable of supporting lynx persistently over time could theoretically provide home ranges for about 200 lynx in Montana. However, the number of resident lynx in Montana likely varies from year-to-year depending on landscape-level hare densities, which also may vary substantially over time (Hodges 2000, pp. 168, 172, 184-195). Based on the caveats also presented, the number of home ranges actually occupied by resident lynx in northwestern Montana in any given year is likely to be lower than the 154 calculated above, and substantially lower in the Montana portion of the GYE than the 49 calculated above.

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