

DRAFT GUIDELINES FOR PROJECT-RELATED HABITAT ASSESSMENTS AND SURVEYS FOR POINT ARENA MOUNTAIN BEAVER (*Aplodontia rufa nigra*)

On December 12, 1991 the Point Arena mountain beaver (PAMB) was listed by the U.S. Fish and Wildlife Service (Service) as endangered under the Endangered Species Act of 1973 (Act). The Recovery Plan for the Point Arena Mountain Beaver (USFWS 1998) identified the need to conduct surveys to locate new populations so they can be protected. The PAMB Recovery Plan also indicated that a presence-absence survey protocol should be developed to guide survey efforts. Accordingly, these guidelines have been developed. The habitat assessments and presence surveys described in this document are intended for use prior to projects that may impact PAMB, and are not intended for research or monitoring uses. USFWS (1998) also provided a review of mountain beaver biology.

Habitat assessments and presence surveys should be conducted prior to any ground or vegetation disturbing project located within the range of the PAMB. Currently, the potential range of the PAMB is considered by the Service to be that area of coastal Mendocino County located south of a point 2 miles north of Bridgeport Landing, north of a point 5 miles south of the town of Point Arena, and to a distance of 5 miles inland from the Pacific Ocean.

Prior to the implementation of any project that may impact PAMB, a two-step process should be followed. First, a habitat assessment should be conducted to determine if potentially suitable PAMB habitat exists in the project area. Second, thorough presence surveys of these suitable habitat areas should be conducted. In some situations, such as where only small pockets of suitable habitat are located, assessments and surveys may be conducted simultaneously. The distance from proposed activities within which assessments and surveys must be conducted (i.e., the “impact area”) depends on the disturbance and habitat-modification particulars of the proposed activity. If preventing “take” of PAMB is the objective, refer to the document entitled “Draft Point Arena Mountain Beaver Standard Protection Measures for No-take Determinations” (USFWS 2001) for activity-specific guidance on determining the impact area. In most cases, assessments and surveys within 500 feet of proposed activities will be sufficient. Technical assistance should be requested from the Service if suitable habitat exists within 500 feet of the proposed activities. When in doubt, you should contact the Service for assistance.

Habitat Assessments

While some generalizations about PAMB habitat suitability can be provided, quantitative descriptions based on vegetation height, percent ground cover, species composition, or other variables are not possible given the limited information available. Burrow openings are often found in areas of lush mesic herbaceous and woody vegetation. These areas are often, but not always, located on steep north-facing slopes or in gullies, and where soils are well-drained and friable. Mountain beavers also are known to use areas around and beneath and around coarse woody material on the ground. While USFWS (1998) provides a more detailed description of habitats associated with PAMB, they are typically found in one of the three basic habitat types listed below. However, these types can overlap and intergrade with one another and can occur

within other vegetation types such as coniferous forest, which could include redwood (*Sequoia sempervirens*), Douglas-fir (*Pseudotsuga menziesii*), grand fir (*Abies grandis*), or Bishop pine (*Pinus muricata*).

Riparian - This broad group of habitats includes areas dominated by willow (*Salix* spp.) or alder (*Alnus* spp.), with a variety of understory plant species including California blackberry (*Rubus ursinus*), skunk cabbage (*Lysichitum americanum*), horsetail (*Equisetum* sp.), and stinging nettle (*Urtica* sp). Sword fern (*Polystichum munitum*) is a very good indicator of PAMB habitat, especially in more inland locations such as openings and riparian strips in coniferous forest.

Coastal scrub - This brushy type is comprised of cow parsnip (*Heracleum lanatum*), coyote brush (*Baccharis pilularis*), coffeeberry (*Rhamnus californica*), poison oak (*Rhus diversiloba*), wax myrtle (*Myrica californica*), various berries (*Rubus* and *Sambucus* spp.) and other species.

Dune scrub - These areas are sand dunes stabilized by various species including bush lupine (*Lupinus arboreus*), coyote brush, seaside woolly sunflower (*Eriophyllum staechadifolium*), ice plant (*Carpobrotus edulis*), reedgrass (*Calamagrostis* spp), and European beachgrass (*Ammophila arenaria*). Grasses and other herbaceous species such as wild radish (*Raphanus sativus*) and hedge nettle (*Stachys ajugoides* var. *rigida*) are also typically present.

Given the variety and mix of species that could constitute suitable PAMB habitat, virtually all areas encountered during habitat assessments that contain brushy or herbaceous plant cover should be mapped and considered potentially suitable. Areas not considered suitable habitat would be those containing only grasses (with no brushy or herbaceous species), or those comprised of conifers or hardwoods with little or no vegetation on the forest floor. Poorly-drained or very rocky soils may not be suitable. Since no data are available quantifying the amount or juxtaposition of suitable habitat necessary to support PAMB, even small pockets of potentially suitable habitat must be surveyed.

For habitat assessments, the following information must be provided:

1. Date(s) of assessment.
2. For each area assessed, the time spend in field conducting the assessment.
3. Name(s) and contact information for person(s) conducting assessment.
4. A description of the project/activity for which the assessment was conducted.
5. A map at appropriate scale showing the footprint of project area, locations of proposed activities, all areas covered by the habitat assessment, and any areas not assessed. Air photos may also be useful. Provide a discussion of why any particular areas were not assessed, such as lack of access to private lands.
6. A map at appropriate scale showing areas of suitable habitat found.
7. A general description of the vegetation in the suitable habitat areas. Photos (with labels) are highly recommended.
8. If available, provide information on soils in the project and assessment areas.

Presence Surveys

Once potentially suitable habitat areas are located, surveys must be conducted. Areas with burrow openings are considered to have PAMB “presence,” while PAMB are considered “absent” in areas without burrow openings. This determination is the primary purpose of surveys. In areas where PAMB burrow openings are present, they can be classified as either “active” or “inactive.” When there are any indications of activity at a site, or when determinations of activity are inconclusive, sites are considered “occupied” by PAMB.

Surveys may be conducted at any time of the year. However, surveys should not be conducted after heavy rains when soils are saturated, in order to reduce the likelihood that burrows are collapsed as a result of foot traffic. Surveys should not be conducted more than 8 weeks prior to operations to reduce the likelihood that PAMB move into the project area subsequent to surveys. In some situations, initial surveys must be conducted greater than 8 weeks prior to operations to allow sufficient time for environmental analysis or other regulatory processes. In these situations, the site may need to be resurveyed within 8 weeks of the initiation of operations. During the PAMB dispersal season when movements of PAMB are more likely, surveys ideally should not be conducted more than 4 weeks prior to operations. After the onset of the dispersal season, sites previously surveyed should be resurveyed within 4 weeks of the initiation of operations. The Service considers the PAMB dispersal season to be April 15 to September 30. When PAMB are found or when occupancy is assumed, resurveying may not be necessary depending on the adequacy of the protection measures to be implemented.

If PAMB are determined to be absent following complete assessments and surveys within 500 feet of the impact area, these negative surveys will be considered valid for a period of 2 years. If PAMB are determined to be absent following complete assessments and surveys within 250 feet of the impact area, these negative surveys will be considered valid for a period of one year.

The primary survey method consists of a set of transects that are approximately parallel to one another, where all areas are visually inspected for the presence of PAMB burrow openings or other signs of PAMB activity. The number of transects and distance between transects is variable depending on the density of the vegetation, the criteria being that all areas are visually inspected. The time of year has a great influence on this; vegetation is generally most dense in late spring/early summer and most sparse in fall and early winter. In areas of very rugged topography or dense vegetation, this may require the surveyor to actually crawl through the vegetation. The use of a walking stick or similar object can be useful for parting or lifting vegetation to inspect for burrows. A walking stick is also useful for climbing steep slopes; thick gloves are also recommended. Areas not surveyed to this level are assumed by the Service to be occupied by PAMB.

Burrow openings average 15 cm (6 inches) in diameter, and range from 10 to 28 cm (4 to 11 inches). Excavated soil or debris may not always be present. A diagnostic feature of PAMB burrows is that the burrow remains approximately the same diameter as far as your arm can reach. PAMB burrows also angle down immediately. Unsealed pocket gopher (*Thomomys*

bottae) burrow openings are considerably smaller and narrow to the width of several fingers. California ground squirrels (*Citellus beecheyi*) are typically observed during the daytime near their burrow openings. The presence of rabbit (*Sylvilagus* sp.) pellets in burrow entrances and excavated soil does not indicate absence of PAMB since rabbits (and other species) will share burrows with PAMB. While less diagnostic, other indicators of PAMB presence include runways through the vegetation, vegetation that has been clipped off, and exposed caches of vegetative material such as “haystacks.” The presence of old, dried, or “worked” vegetation can be evidence of burrow cleaning activity. This material can be either food waste or old nesting material. A large amount (an arm load) indicates that the burrow leads directly to the nest chamber.

If possible, it should also be noted during surveys whether burrow openings are active or inactive. Indicators of activity include a large mound of freshly dug loose soil at the burrow entrance, wilted vegetation in or near the burrow opening, an open and clean burrow entrance, and a wad of old dried vegetation pushed out of the opening or inside of the burrow. Indicators of inactivity include debris in, or collapsing of, burrow openings. Heavy spider webs may indicate inactivity, but caution should be used when applying this criterion because web building can be very rapid. Burrow systems also have multiple entrances, some of which are infrequently used. In addition, certain burrows may only be used seasonally for specific activities or when certain nearby plants are optimum as a food source. Use of PAMB burrows by rabbits and other species also confuses the assessment of activity. As a result of these considerations, a determination that burrow openings are “active” or “inactive” is somewhat subjective, and a reliable determination that all PAMB burrows are inactive, and that the site is unoccupied is exceedingly difficult to make. Therefore, when activity status can not be determined with certainty for all burrow openings, a site will be considered occupied by the Service.

Other techniques can be used to help assess if burrows are currently active, or if they are actually being used by another species. TrailMaster remote cameras or hair-snares may be useful for these purposes. In addition, small bundles of fresh sword fern growth can be placed in suspicious burrows; if bundles are promptly removed this would suggest presence of PAMB. These techniques are still being developed and tested, and you should contact the Service for assistance in determining the applicability of these techniques to your particular situation.

A primary consideration during surveys is that every attempt should be made not to crush or cause the burrows to be collapsed, and to disturb the vegetation as little as possible. Surveyors should walk slowly and carefully, making careful note of foot placement. While counting burrow openings and determining if they are active provides good information on the site, these data should not be collected whenever collapsing burrows can not be avoided. When damage to vegetation in areas with PAMB presence can not be avoided, surveyors should stay out of these areas. The minimum number of visits to burrow areas necessary to get the job done should be conducted, since human presence may attract predators.

For surveys, the following information must be provided:

1. Date(s) of survey.

2. For each area surveyed, the time spend in field conducting the surveys.
3. Name(s) and contact information for person(s) conducting surveys.
4. A map at appropriate scale showing the areas of potentially suitable habitat identified.
5. A description of survey intensity and method. For example, “parallel transects at 5 m spacing” and/or “wandering surveys with >75% of ground surface observed.”
6. A map at appropriate scale showing suitable habitat areas with PAMB presence or absence, and any suitable habitat areas not adequately surveyed. For areas not adequately surveyed, provide a discussion of the reasons (access denied to private property, presence of poison oak, steep topography, impenetrable vegetation, etc.). Air photos may also be useful.
7. UTM coordinates for the center point of each area with presence.
8. If available, counts of burrow openings or estimates of the area containing active or inactive burrow openings. If large enough, areas with inactive burrow openings should also be mapped.
9. An estimate of the area (e.g., square meters) with burrow openings present.
10. The distance between proposed activities and the closest burrow openings.
11. A discussion/description of the habitat in areas with burrow openings present versus suitable areas without burrow openings present. Topics should include plant species present, vegetation height and percent ground cover, slope and aspect, and soil characteristics if known.
12. Presence of other fossorial species.
13. If possible, submit photos of burrow openings; any photos must include an object for scale.

It is important that negative survey results also be reported to the Service. These data are useful in improving our understanding of the distribution and habitat associations of PAMB.

Qualifications

Only Service-approved individuals shall conduct habitat assessments and surveys. Most potential new PAMB surveyors must attend a Service-sponsored, one-day training session on PAMB habitat assessment and surveys. Candidates for this training must first demonstrate a suitable background which could include higher education in wildlife, biology, botany, forestry or other related fields, actual field experience with mountain beavers, or other applicable education or experience. All candidates for the training must also be familiar with the contents of the Recovery Plan for the Point Arena Mountain Beaver (USFWS 1998). Some individuals may be Service-approved without participating in the training if past experience is deemed sufficient by the Service.

Literature Cited

- U.S. Fish and Wildlife Service (USFWS). 1998. Recovery Plan for the Point Arena Mountain Beaver *Aplodontia rufa nigra* (Rafinesque). Portland, Oregon.
- _____. 2001. Draft Point Arena Mountain Beaver Standard Protection Measures for No-take

Determinations. Unpublished document on file at the Arcata Fish and Wildlife Office, Arcata, California

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