

Landowner Incentives and Tolerances for Managing Beaver Impacts in Oregon

BY ANITA T. MORZILLO AND
MARK D. NEEDHAM

The American beaver (*Castor canadensis*) plays an important role in maintaining aquatic and floodplain ecosystem functions and habitat for other species, and has the potential to be an active contributor to fulfilling objectives outlined in conservation plans such as the Oregon Plan for Salmon and Watersheds, Oregon Conservation Strategy, and Mid-Columbia Recovery Plan. For those reasons, there is interest in reestablishing beaver populations in many areas, including Oregon. For such efforts to succeed, there is a need to address current and potential future conflicts between landowners and beavers, particularly on private lands.

In a study funded by the Oregon Department of Fish and Wildlife, Oregon Watershed Enhancement Board, and Bonneville Power Administration, we collected data from Oregon residents to reveal their: (a) knowledge about, attitudes toward, and tolerance for beavers and beaver impacts on private property; (b) support of strategies for managing beavers and their impacts; and (c) opinions about incentives for encouraging coexistence with beavers (e.g., reimbursements, expert site visits, technical assistance, equipment and labor, information and education). Understanding how humans can coexist with beavers and the role of possible incentives in this process are crucial for advising monitoring and technical assistance associated with reestablishment efforts.

In 2011, we administered questionnaires by mail to random samples of residents living in specific areas within



Anita T. Morzillo



Mark D. Needham

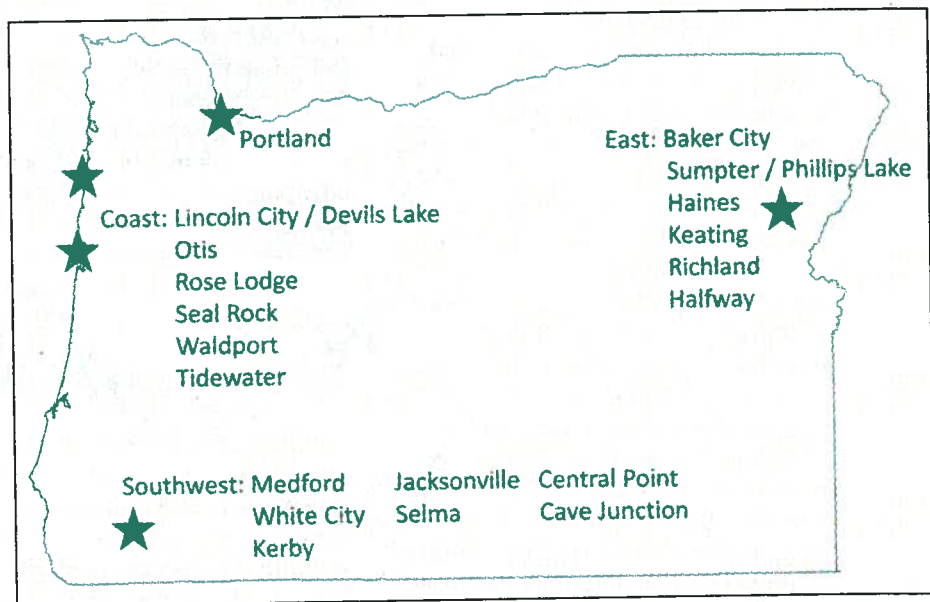
four regions of Oregon (East, Coast, Portland, Southwest; see Figure 1). These areas were selected based on input from stakeholders and agency representatives, and proximity to water bodies, riparian lowlands, and wetlands known to contain beavers or beaver habitat. We received 1,512 completed questionnaires (32% response rate), followed by telephone interviews with 142 residents who did not return their questionnaire. No differences in responses existed between the mail and telephone responses.

Results

Across all four regions, most respondents owned their current property (86%) with a majority (63%) of parcels less than five acres in size. Sixteen percent of respondents currently have beavers on their property and 26% had them in the past. Twenty percent of respondents have also experienced impacts caused by beavers, particularly those respondents from the East (27%) and Coast (30%). Damage to trees (25%) and culverts (14%), and overflow of water bodies (13%) were the most frequently reported incidents. Few respondents (10% or fewer), however, have taken actions to deal with beavers, such as

wrapping trees, removing beaver dams, contacting agencies, frightening the animals, or installing exclusion devices. Respondents from the East and those who have experienced beaver impacts were most concerned about property-related damage, whereas those in Portland were more concerned about health and safety issues. These results suggest that a number of residents in Oregon are actively dealing with beavers and concerned about damage.

Despite potential impacts, attitudes toward beavers were quite positive with the most positive attitudes generally among Portland respondents and the least positive generally in the East region and among those who have previously experienced beaver impacts. In addition, the majority of respondents were interested in seeing (65%) or having (57%) beavers on their property or neighboring properties, although those in the East and those who have experienced damage from beavers were slightly less interested. Respondents were also much more knowledgeable about beavers than has been reported for many other wildlife species (e.g., deer, elk, black bears). Of the knowledge questions that we asked, most respondents knew that beavers build



SOURCE: ANITA T. MORZILLO

Figure 1. The four regions in Oregon where random samples of residents received questionnaires about the American beaver.

dams and live in water bodies, whereas the fewest were aware that beavers do not eat fish (they eat cambium, bark, buds and roots, and aquatic vegetation) and that their dams create important habitat for fish.

There was widespread belief that wildlife agencies (particularly state level) and landowners should share equal responsibility for managing beavers and their impacts. Providing information about how to coexist with beavers was the most acceptable management response, and capturing and relocating beavers also was acceptable. Leaving beavers alone was acceptable when beavers only chewed trees, but acceptance declined for more substantial impacts such as flooding. The majority of respondents believed that wrapping trees and installing control devices and screens were acceptable for addressing beaver impacts, and removing dams was also acceptable only in response to severe damage. Regardless of impact severity, however, frightening beavers away and lethal control of beavers were perceived as unacceptable responses.

We also asked residents the extent that they would be likely to take advantage of possible incentives for retaining beavers and their habitat, and coexisting with this species on their land. Most respondents would be unlikely to restrict beavers from their property or neighboring properties. Instead, respondents would be likely to take advantage of: (a) information sent to them about how to coexist with beavers and address their impacts; (b) financial compensation to fix or prevent beaver damage; (c) expert visits to provide technical expertise and resources; and (d) equipment or labor to enable them to retain beavers on their land. Our data suggest that landowners in the East and those who have experienced beaver impacts would be slightly less likely to take advantage of these incentives, whereas those in Portland and those who have not experienced severe impacts are most likely to take advantage of these

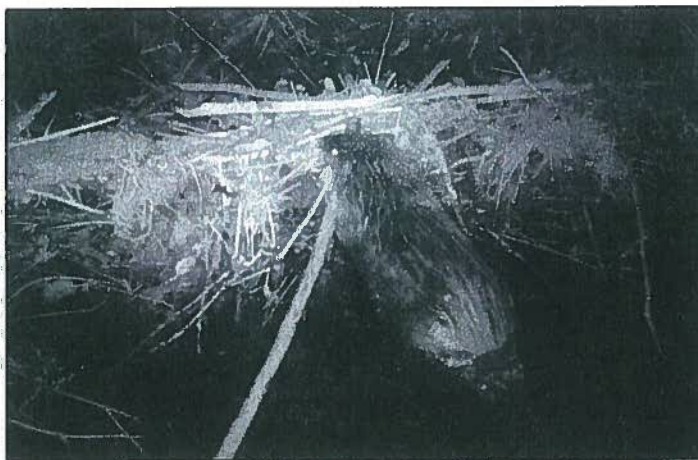


PHOTO COURTESY OF VANESSA PETRO

A resident female beaver maintains a dam constructed by her and a relocated, radio-tagged male beaver (not shown) in the Alsea Basin of coastal Oregon. The pair is monitored as part of an Oregon State University study evaluating responses of beavers relocated to locations where their dam-building activities might influence Coho salmon production.

initiatives. Our results also suggest potential for collaboration among agencies, landowners, and other stakeholders in these efforts (e.g., watershed councils). Lethal control was not a first choice for most respondents and regional-specific management may not be necessary even though some minor regional differences in responses were found in our study.


Management implications

From an outreach perspective, our results suggest that most respondents are highly knowledgeable about beavers, have positive attitudes toward this species, and are interested in coexisting with beavers. Guidelines for relocating beavers currently exist in Oregon and ongoing research is exploring the viability and success of relocation efforts. Our findings suggest that respondents may be likely to take advantage of information sent to them about coexisting with beavers and are willing to try alternative approaches and incentives for maintaining beavers on their property. An effective use of resources may be to disseminate information dispelling myths about beavers and their habits (e.g., diet), enhancing cognitive linkages between beavers and other ecosystem processes, and providing health and safety information related to interacting with this species, particularly in urban and suburban areas. Given that no single incentive for retaining

beavers on private property was preferred over another, a suite of incentives may be the most useful and flexible approach, as long as incentives are efficient and effective for addressing impacts. Possible incentives may include site visits by experts and agency personnel, providing information and feedback about methods for avoiding conflict with beavers, and financial or labor assistance for fixing or preventing damage. Other actions may involve information about planting trees and other resources available for mitigating beaver impacts, and assistance with proper installation of preventive

mechanisms (e.g., wire mesh around trees, screening or pipe devices for maintaining flow in culverts). It remains an issue for managers to identify which of these strategies and incentives would work best for individual situations, and then work with landowners to address impacts and prevent future conflicts. Scientific publications from this project are forthcoming, and a full report of results can be viewed at www.dfw.state.or.us/wildlife/living_with/beaver.asp. ♦

Anita T. Morzillo and Mark D. Needham are both with the Department of Forest Ecosystems and Society, Oregon State University, Corvallis. Anita can be reached at 541-737-8433 or anita.morzillo@oregonstate.edu, and Mark at 541-737-1498 or mark.needham@oregonstate.edu.



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