Cascades Carnivore Monitoring Program
2024 Progress Report

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Introduction
The Cascades Carnivore Monitoring Program (CCMP) provides the methodological, organizational, and data management architecture necessary to support a highly collaborative, long-term monitoring program for wolverines (*Gulo gulo*), Canada lynx (*Lynx canadensis*), and other carnivores of conservation concern in the Cascades. Program development began in 2021.

CCMP's current participants include: B.C. Ministry of Forests, Lands, Natural Resource Operations, and Rural Development; B.C. Parks; Cascades Carnivore Project; Cascades Wolverine Project; Conservation Northwest; Gifford Pinchot National Forest; Lummi Nation; Mt. Baker-Snoqualmie National Forest; Muckleshoot Tribe; North Cascades National Park Service Complex; Okanogan-Wenatchee National Forest; Puyallup Tribe; Sauk-Suiattle Tribe; St'át'imc Eco Resources; Swinomish Tribe; Tulalip Tribes; University of British Columbia; University of Washington; Upper Skagit Indian Trible; USFS Methow Valley Ranger District; USFS Pacific Northwest Region; USFS Pacific Northwest Research Station; USFS Region 6 Regional Office; Washington Department of Fish and Wildlife; Washington Department of Natural Resources; Washington State University; Woodland Park Zoo; and Yakama Nation.

In May 2024, after much group planning, we held an in-person training for field crews preparing to launch field efforts across the study area (Figure 1). The training was attended by three dozen individuals representing more than a dozen agencies, NGOs, Tribes, and academic institutions. We created an extensive training video as an added resource.

Figure 1. Field training at Okanogan-Wenatchee Ranger District, May 2024.

Preliminary Results from the 2024 Field Season

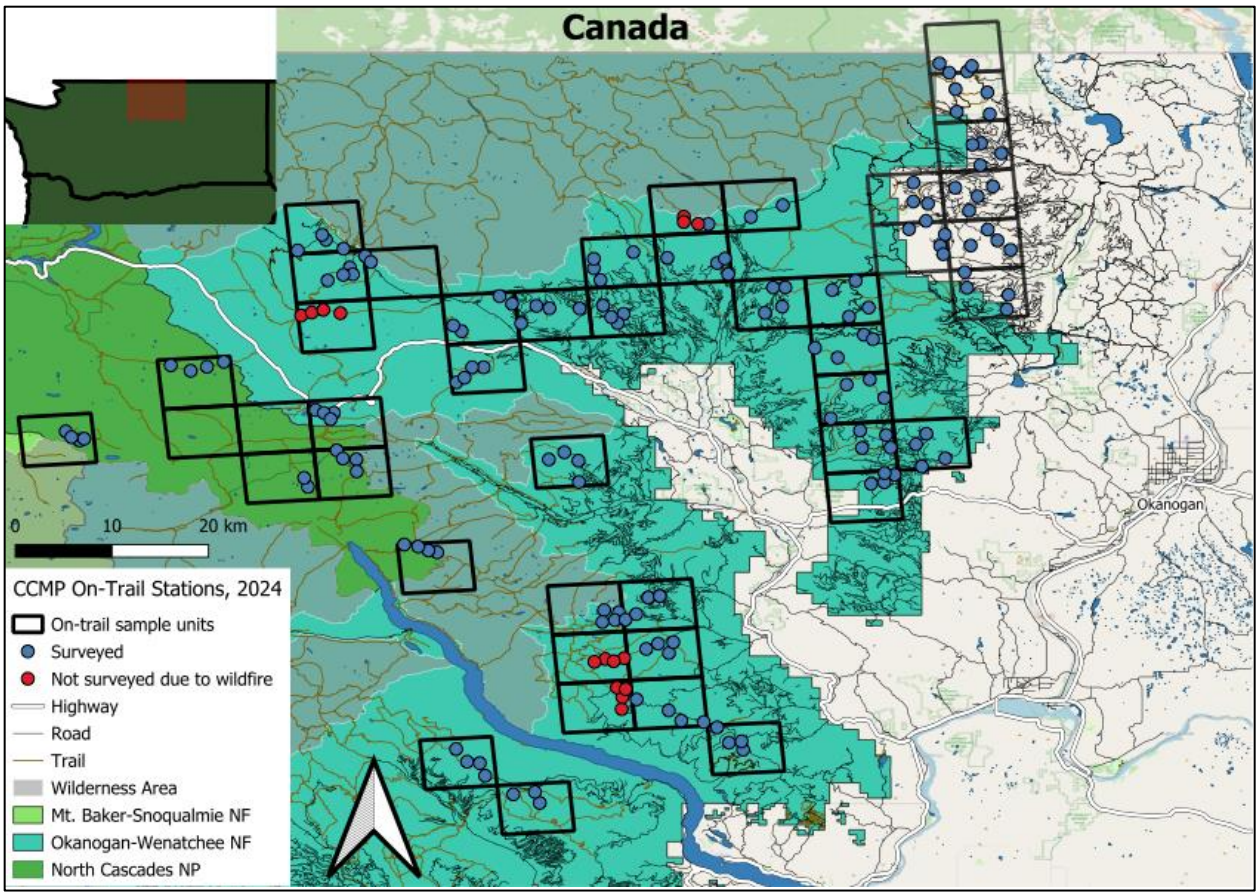
Field efforts took place between June and October. To conduct our surveys, we employed two remote camera-based protocols: an on-trail protocol and an off-trail protocol.

On-Trail Deployments

For the on-trail (summer-only) protocol, originally developed to prioritize lynx detections, crews deployed passive, unbaited/unscented camera stations along trails and forest roads. A total of 153 stations were installed (Map 1), with access to an additional 15 mapped locations precluded by wildfire. Of the 153 stations successfully installed, 147 were removed as planned in the later summer or fall, with removal access to the remaining 6 precluded by wildfire (Table 1).

2024 Station Status	On-Trail	Off-Trail
Deployed	153	35
Unable to be deployed due to wildfire	15	0
Removed	147	NA
Unable to be removed due to wildfire	6	NA

Table 1. Summary of station deployments and removals.

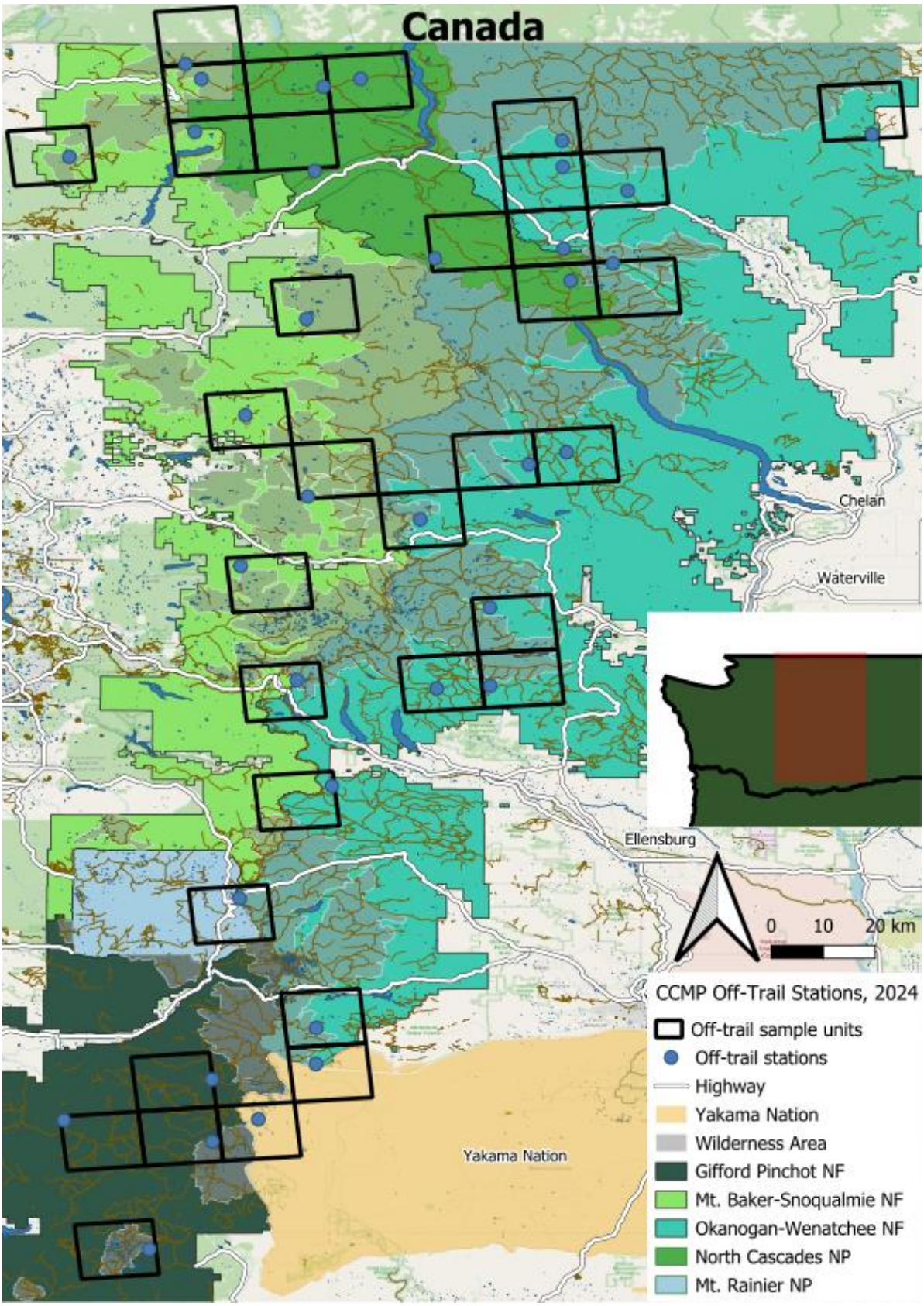


Map 1. On-trail stations deployed in summer, 2024.

Off-Trail Deployments

Field crews deployed 35 off-trail cameras paired with automated scent dispensers programmed to release 3 ml of liquid scent lure every other day (Table 1, Map 2). These survey stations, whose protocol was originally developed to detect wolverines[1], will remain in place for a full year before being removed by crews.

[1] Long, Robert & MacKay, Paula & Sauder, Joel & Sinclair, Mike & Aubry, K.B. & Raley, C.M. (2024). An overwinter protocol for detecting wolverines and other carnivores at camera traps paired with automated scent dispensers. *Ecology and Evolution*. 14. 10.1002/ece3.11290.



Map 2. Off-trail stations deployed in summer, 2024. These stations will be in place for a year.

Data Processing

We are currently using Wildlife Insights to classify images collected from on-trail cameras, with ~25% of our stations and 145,000 images coded to-date. We have already identified multiple lynx and wolverines who were detected on-trail, as well as wolves (*Canis lupus*) and other carnivores (Figure 2).

Figure 2. Canada lynx (a), wolverine (b), and wolf (c) photographed by on-trail cameras.

Challenges

Wildfires prohibited access to several of our on-trail stations, precluding crews from either deploying or removing survey equipment. Six on-trail stations that could not be removed this summer will be removed in 2025, assuming they survived the fire.

We were unable to acquire permits for conducting surveys in Wilderness in 2024 due primarily to staffing and capacity constraints within the U.S. Forest Service. We continue to work through the permitting process with agency personnel and will presumably add Wilderness sites to our on-trail survey efforts in 2025.

Transboundary Collaboration

We have been working closely with multiple entities (i.e., agencies, academics, First Nations) in British Columbia who are interested in expanding CCMP's survey design across the border. Our shared goal is to advance transboundary carnivore conservation through bi-national scientific collaboration among a diversity of partners who will together promote standardized data collection, integration, and analysis. In September, R. Long and P. MacKay provided a day-long training on CCMP's field protocols to B.C. biologists. Transboundary partners have already purchased scent dispensers and will tentatively deploy field crews in B.C.'s Manning Provincial Park, as well as further north, in summer 2025.