

sensitive habitats, are not identified in the guidance. This project is currently being piloted with the Olympic Region Maintenance Program. Training courses with individual maintenance sheds have provided opportunity for discussion and question and answer sessions. Biologists and maintenance personnel have had the opportunity to work together to learn each other's programs, perspectives, and observations and to establish good working relationships. The Highway Maintenance Environmental Compliance Guidance for Protected Terrestrial Species Program has helped the Maintenance Program conduct their projects in a timely fashion, without unnecessary delays, and remain good stewards of the environment.

DIET OF THE COLUMBIA TORRENT SALAMANDER, *RHYACOTRITON KEZERI*:
PRELIMINARY FINDINGS. RYAN P O'DONNELL, CASEY H RICHART, MARC P HAYES,
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We are conducting the 1st study of the diet of the Columbia torrent salamander, *Rhyacotriton kezeri*. Few studies have addressed the diet of any species in this genus and none have addressed larval diet. During destructive sampling of 10 seeps and 10 non-seep riparian areas as part of a comparative study of sampling methods from 1 to 18 November 2004, we systematically collected and preserved 177 Columbia torrent salamanders (including 137 larvae) from the Willapa Hills of southwest Washington. We are currently analyzing the gastrointestinal tract contents from these animals. To date, we have quantified the contents of 41 specimens, including 24 larvae, and preliminarily identified 233 prey items to the level of Order for insects and at least Phylum but usually Class for other taxa. Larvae and post-metamorphs each contained a median of 5 prey items. For larvae, copepods (Arthropoda: Malacostraca: Maxillopoda) were the most commonly found prey item, occurring in 46% of salamanders examined and accounting for 55% of prey items. Collembola and larval Plecoptera, Coleoptera, and Diptera each occurred in 21 to 29% of larval salamanders and accounted for 4 to 17% of prey items. For post-metamorphic salamanders, larval Diptera were the most common prey item, accounting for 49% of prey and occurring in 47% of salamanders. Larval Coleoptera, adult Coleoptera, Collembola, and Mollusca each occurred in 35 to 41% of salamanders and accounted for 4 to 8% of prey. Analysis is ongoing, but our objective is to analyze the gastrointestinal contents of ≥ 100 salamanders from the 177 available.

DESIGNS FOR PROTECTING AMPHIBIANS IN MANAGED HEADWATER FORESTS
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Headwaters comprise the majority of US Pacific Northwest forest landscapes, and harbor a diversity of endemic species. Thinning of young managed stands is being used on federal lands for wood production, fuels reduction to reduce risk of severe fire, and accelerated development of late-successional forest conditions. Thinning with headwater-stream riparian buffers and upslope-leave islands holds promise for species retention. Specifically, our research examines the effects on instream, bank-dwelling, and upslope amphibians of 4 riparian buffer widths (6, 15, 70, and 145 m on each side of streams) and 3 sizes of upslope leave islands (0.1, 0.2, and 0.4 ha circular patches) within a thinned forest matrix (50 to 80 y), which reduced Douglas-fir stands from about 600 trees/ha (tph) to 200 tph. Instream amphibians were not affected by joint buffers and upslope thinning in years 1 and 2 post-treatment, while some effects were seen on bank and thinned upslope salamander species abundances. Larger leave islands retained habitats and fauna. We are tracking stream species' responses through year 5 post-thinning and propose to follow the study through a 2nd entry of thinning, reducing stands to about 80 tph.