

A SURVEY OF THE KATKA-BOULDER AND HORIZON ANALYSIS AREAS,  
IDAHO PANHANDLE NATIONAL FOREST, FOR THE COEUR D'ALENE  
SALAMANDER (PLETHODON VANDYKEI IDAHOENSIS)

BY

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## INTRODUCTION

The Coeur d'Alene salamander (Plethodon vandykei idahoensis) is classified as a Sensitive Species by Region 1 of the U. S. Forest Service and the U. S. Bureau of Land Management in Idaho as well as a Species of Special Concern by the Idaho Department of Fish and Game. Prior to 1987, the Coeur d'Alene salamander had been collected at 29 sites in northern Idaho, of which at least eight sites were no longer extant. In 1987, Groves (1988) discovered 30 new sites for the species, primarily in the North Fork Clearwater and St. Joe River drainages. He also determined that 16 of the 29 original sites remained extant, bringing the total number of known sites to 46.

In 1988, Groves (1989) continued his surveys for new populations, concentrating primarily on the Pend Oreille and Kootenai River drainages. He discovered one new site located on a tributary of the upper Coeur d'Alene River. Wilson and Simon (1988) also discovered a new site on a tributary of the Kootenai River along the Montana-Idaho border. Additionally, Wilson (pers. comm.) confirmed that two more of the original 29 sites were still extant. Thus, by the end of 1988 we knew of 50 extant sites of Coeur d'Alene salamanders in Idaho.

In 1989, Wilson (pers. comm.) discovered two new Coeur d'Alene salamander sites in Idaho, one adjacent to Coeur d'Alene Lake and the other near the town of Clarkia, ID. Incidental to other survey work, Groves (Idaho Natural Heritage data base)

discovered a new site in 1989 on Meadow Creek, a tributary of the Selway River. In summary, as of June 1989, 53 extant sites were known.

During late September and early October 1989, we surveyed two analysis areas (hereafter referred to as AA) on the Idaho Panhandle National Forest for Coeur d'Alene salamanders. These areas are: 1) the Horizon AA, principally encompassing the upper Wolf Lodge Creek drainage on the Coeur d'Alene National Forest (Figure 1) and 2) the Katka-Boulder AA, comprised of the Boulder Creek drainages of the Kootenai River on the Kaniksu National Forest (Figure 2). This report summarizes the results of our surveys for the Coeur d'Alene salamander in these two analysis areas.

#### METHODS

We searched the three major types of habitats where Coeur d'Alene salamanders are found: spray zones of waterfalls, along the edges of streams, and in spring seepages. All searches were conducted during the day except for one visit to Copper Falls. We drove the major roads of both AAs searching for roadside seeps which might contain salamanders. At the Horizon AA, we also hiked portions of Wolf Lodge, Marie, Burton, Skitwish, and Searchlight Creeks.

In the Katka-Boulder AA, we surveyed streams which intersected the Boulder Creek Rd. and state route 24 from Katka to the ghost town of Boulder. We generally searched 50-100 m downstream and upstream of the road along these streams. In

addition, we hiked along the Middle Fork Boulder Creek, Caboose and Debt Creeks (downstream of SR 24), and an unnamed creek one drainage to the south of Camp Creek (T60NR3E).

In addition to surveying the Horizon and Katka-Boulder AAs, we searched a falls on Little Hell Roaring Creek, a tributary of Round Prairie Creek in the Moyie River drainage. We also visited a known Coeur d'Alene salamander population at Copper Creek Falls, also a tributary of the Moyie River.

## RESULTS AND DISCUSSION

### Horizon AA

We found no seeps containing salamanders along the road looping from Wolf Lodge Creek Access to Wolf Lodge Saddle to Windy Ridge to Fernan Saddle to Meyers Saddle and back to Wolf Lodge Creek Access site (Figure 1). In fact, we found only two seeps along the entire loop. Both Stella and Lonesome Creeks were dry. Wolf Lodge Creek contained some water in Sections 16 and 21, but the streambank was heavily grazed and appeared to contain no Coeur d'Alene salamander habitat. The lower portions of Marie Creek below Burton Creek were also dry.

The first half-mile of Burton Creek upstream of Marie Creek (Section 14) is steep with some fractured rock. Although the habitat looked good, we were unable to locate any salamanders. Above Section 14, the habitat is poor. Incidental to this survey, CRG observed two pileated woodpeckers (Dryocopus pileatus) along Burton Creek (Section 14) in a stand of small

diameter (<12") western hemlocks (Tsuga heterophylla).

We found Coeur d'Alene salamanders along both Skitwish and Marie Creeks (Table 1). In both cases, a juvenile salamander was collected in talus immediately adjacent to the creek. Although nearly the entire lengths of both streams were searched, salamanders were only located in talus fields next to the streams. Two tailed frogs (Ascaphus truei) were also observed in Marie Creek.

#### Katka-Boulder AA

As in the Horizon AA, we drove the main roads of the Katka-Boulder AA searching for seeps containing salamanders. No roadside seeps were observed along either the Boulder Creek Rd. or state route 24. One salamander was collected in Caboose Creek, a stream which cascades down a steep and narrow canyon from state route 24 towards the Kootenai River. Although only one animal was observed (Table 1), there appears to be considerable amounts of habitat (i.e. fractured rock) along the stream. Similarly, Debt Creek also contained good salamander habitat, although no salamanders were observed. In addition, the unnamed creek south of Camp Creek appeared to contain some stretches of good habitat, although no salamanders were found.

#### Little Hell Roaring Creek and Copper Falls

On 10-2-89 we searched a falls on Little Hell Roaring Creek with Forest Service biologists Paul Harrington and Brett Christensen. One adult Coeur d'Alene salamander was found in talus at the base of the falls within the spray zone. Despite

considerable searching, no other salamanders were observed. We also searched the stream above the falls, but were unable to locate any salamanders.

On the evening of 10-2-89 we visited Copper Falls, where Coeur d'Alene salamanders are known to occur in the spray zone of the falls (Groves 1988). We searched around the pool at the base of the falls, and along the stream below the falls but did not see any salamanders. A few days earlier on 9-26-89, Brett Christensen (pers. comm.) had visited Copper Falls and counted approximately 50 salamanders at night. On the evening of 9-30-89, the mountain ridges (approximately 5000' elevation) surrounding Bonners Ferry received a dusting of snow. Because Copper Falls is located at the relatively high elevation of 3500', it is likely that colder temperatures from this early winter storm sent the salamanders at Copper Falls into hibernation.

#### Discussion

Results of these surveys did not expand the range of the Coeur d'Alene salamander, although new populations were discovered. Based on previous surveys in the Kootenai and Pend Oreille River drainages, Groves (1989) suggested that the Coeur d'Alene salamander was uncommon in the northern part of its range. These surveys supported this notion. We discovered few new sites and observed low numbers of animals. However, cold temperatures may have had some influence on our surveys in the Katka-Boulder AA. Early October is approaching the time of

hibernation for these salamanders (Wilson and Larsen 1988). The lack of salamanders at Copper Creek Falls indicated that salamanders at higher elevations may have entered into hibernation during our surveys or at least become less active. Although the unnamed stream south of Camp Creek appeared to contain some good habitat, we were unable to locate any salamanders. Because this portion of the stream was at a relatively high elevation, salamanders which might have been present may have already entered hibernation or become less active.

Geology, geomorphology, precipitation, and temperature are likely all important factors which influence the distribution of Coeur d'Alene salamanders (Groves 1988, 1989). In northern Idaho, there are primarily two major rock types: igneous rocks of which granite is the most common type and metamorphic rock, most of which belongs to the Belt Series. Although geological maps tend to be very simplified, a geological map for Idaho (Figure 3) shows that the heart of the Coeur d'Alene salamander's distribution (i.e., the Clearwater and St. Joe River drainages) is coincidental with beltrock. Of the two rock types mentioned above, granite has a tendency to weather into smooth, rounded rocks whereas beltrock tends to be more angular in form and fractured. It is in these fractured rock types that we usually find Coeur d'Alene salamanders.

Coeur d'Alene salamanders are not restricted to beltrock, however. In some situations, steep slopes greater than the angle

of repose furnish a constant supply of fractured rock as it erodes and rolls downhill or downstream. These rocks need not necessarily be metamorphic and, in fact, are in some cases granitic. The important point is that fractured, angular rock appears to be an important component of the Coeur d'Alene salamander's habitat. How that rock becomes fractured is an interplay of geological and geomorphological processes.

During this survey, the question has arisen as to what impact timber harvest could have on Coeur d'Alene salamanders. Although this question is difficult to answer, we can foresee two potentially negative impacts of logging on these salamanders. They are sedimentation of streams and loss of canopy cover adjacent to streams. The former can fill in interstitial spaces between fractured rock, thereby eliminating habitat. The latter can increase stream air temperatures, perhaps beyond the tolerance range of the species. Nevertheless, Groves (1988) found salamanders persisting in the midst of heavy logging in the Clearwater drainage. It is probable that the effects of timber harvest would need to be quite severe on a stream system before these salamanders are impacted. However, no data exist to sufficiently address this question.

Groves (1989) suggested that a management plan or guidelines need to be developed for this Sensitive species. Over 80% of the known sites for the Coeur d'Alene salamander occur on national forest lands. Such a plan should discuss in detail the major factors which appear to explain the distribution of the species,



explain how surveys should be conducted, and establish a monitoring program to insure the persistence of this northern Rockies endemic. With regard to the impacts of timber harvest, we suggest that designing an experiment a priori in an area slated for timber harvest and containing Coeur d'Alene salamanders would be the best way to address these questions.

Table 1. Locations of Coeur d'Alene salamander populations discovered on the Idaho Panhandle National Forest, September-October, 1989.

<u>Site Name</u>	<u>Date</u>	<u>TRS</u>	<u># salamanders observed</u>
Skitwish Creek	9-28-89	T50NR2WS24	1 juvenile (*)
Marie Creek	9-29-89	T50NR1WS20	1 juvenile
Little Hell Roaring Falls	10-2-89	T65NR2ES33	1 adult
Caboose Creek	10-3-89	T61NR3ES8	1 adult

\* All salamanders which we observed were collected and deposited as specimens in the Department of Biological Sciences, University of Idaho (Dr. Dick Wallace - Curator).

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Thanks to Paul Harrington of the Idaho Panhandle National Forest for his continued support of Coeur d'Alene salamander and other Sensitive species survey work. Thanks also to Forest Service biologists Peg Beckman and Brett Christensen for field assistance, and to Paul Sieracki for telling us about the falls on Caboose and Little Hell Roaring Creeks. Terry Maley, a geologist for the BLM in Idaho, provided insights into how geology could influence the distribution of the Coeur d'Alene salamander.

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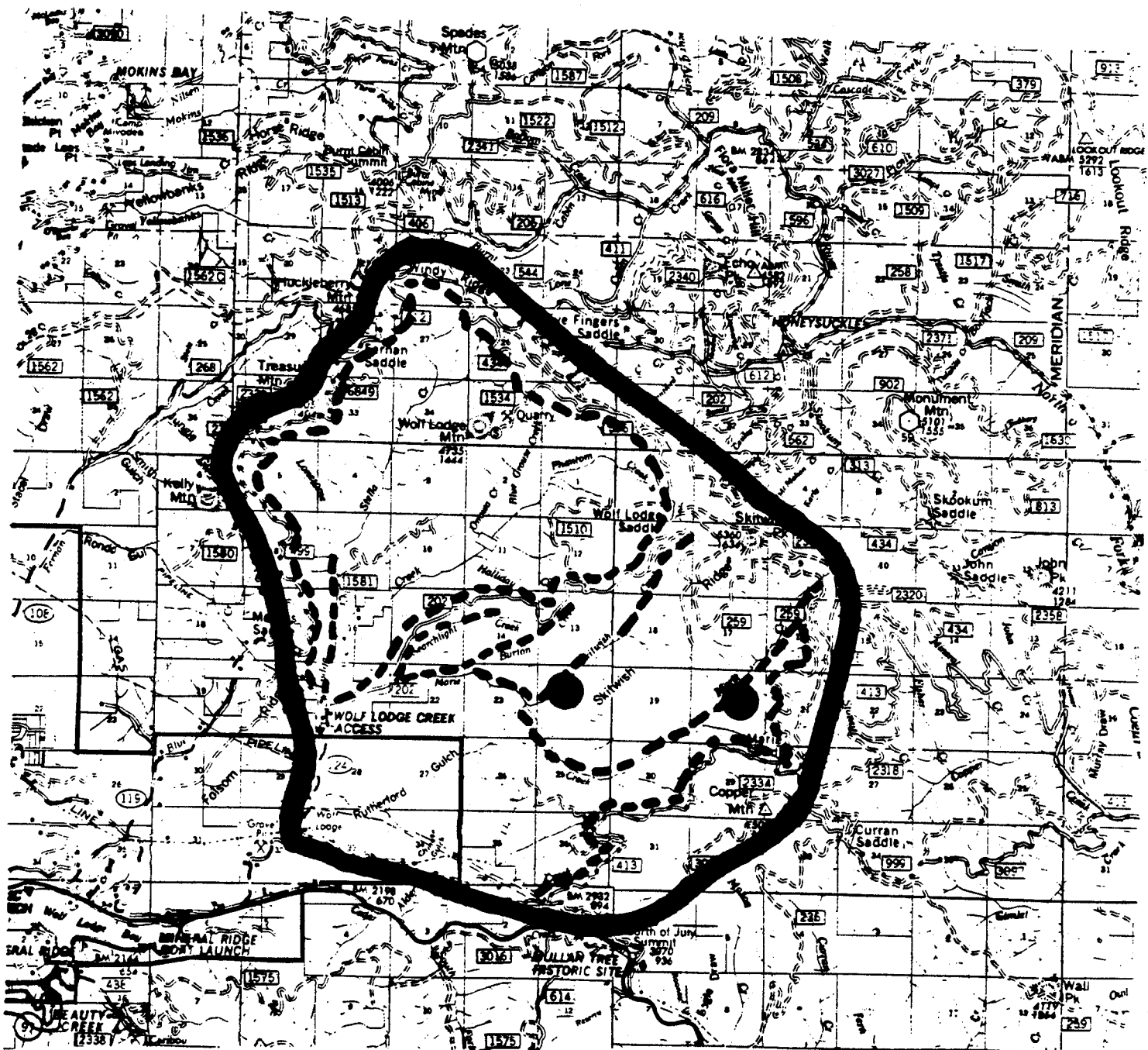


Figure 1. Location of Horizon Analysis Area (AA). Dashed lines indicate areas searched for Coeur d'Alene salamanders. Dots indicate locations of new populations.

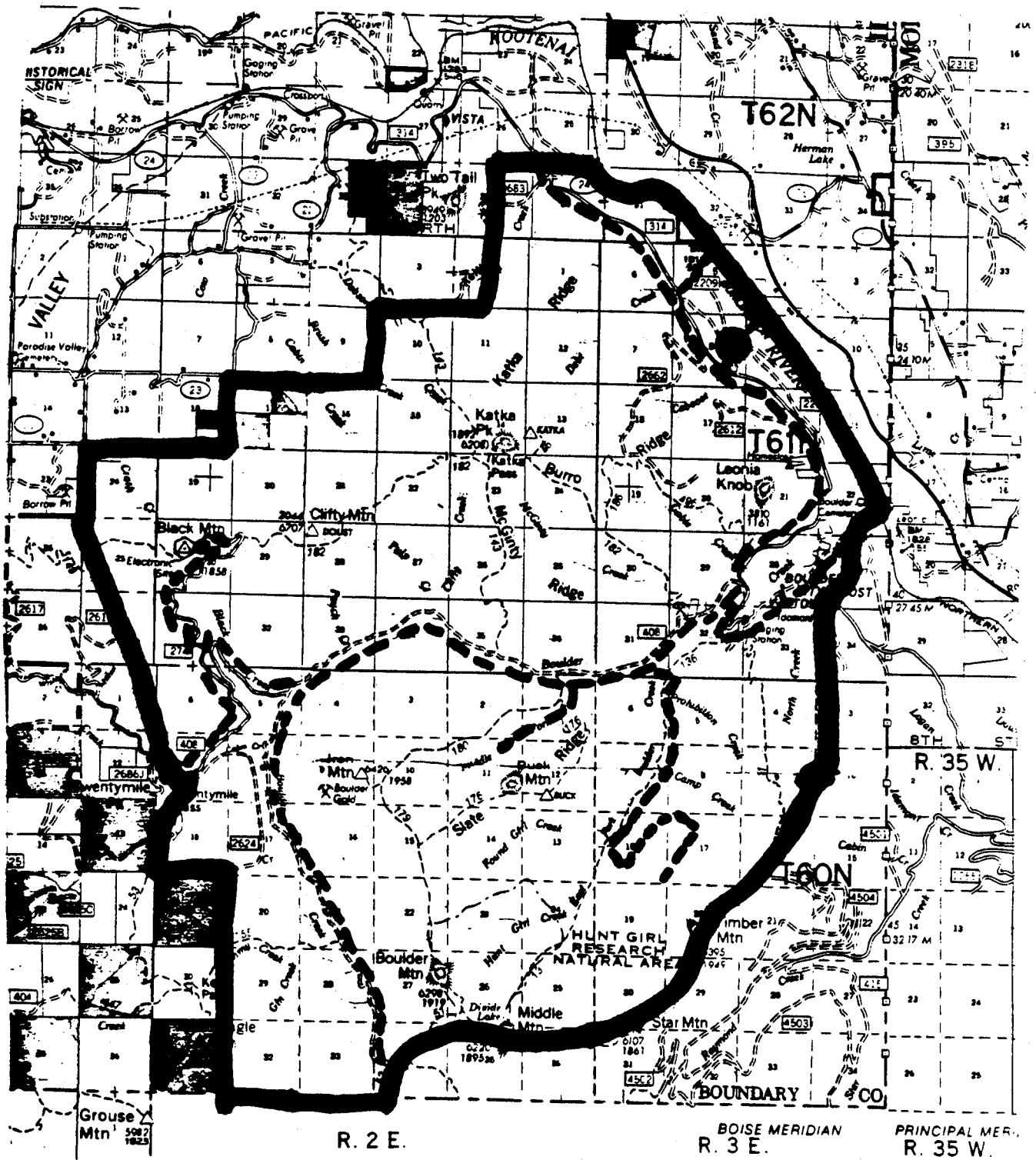
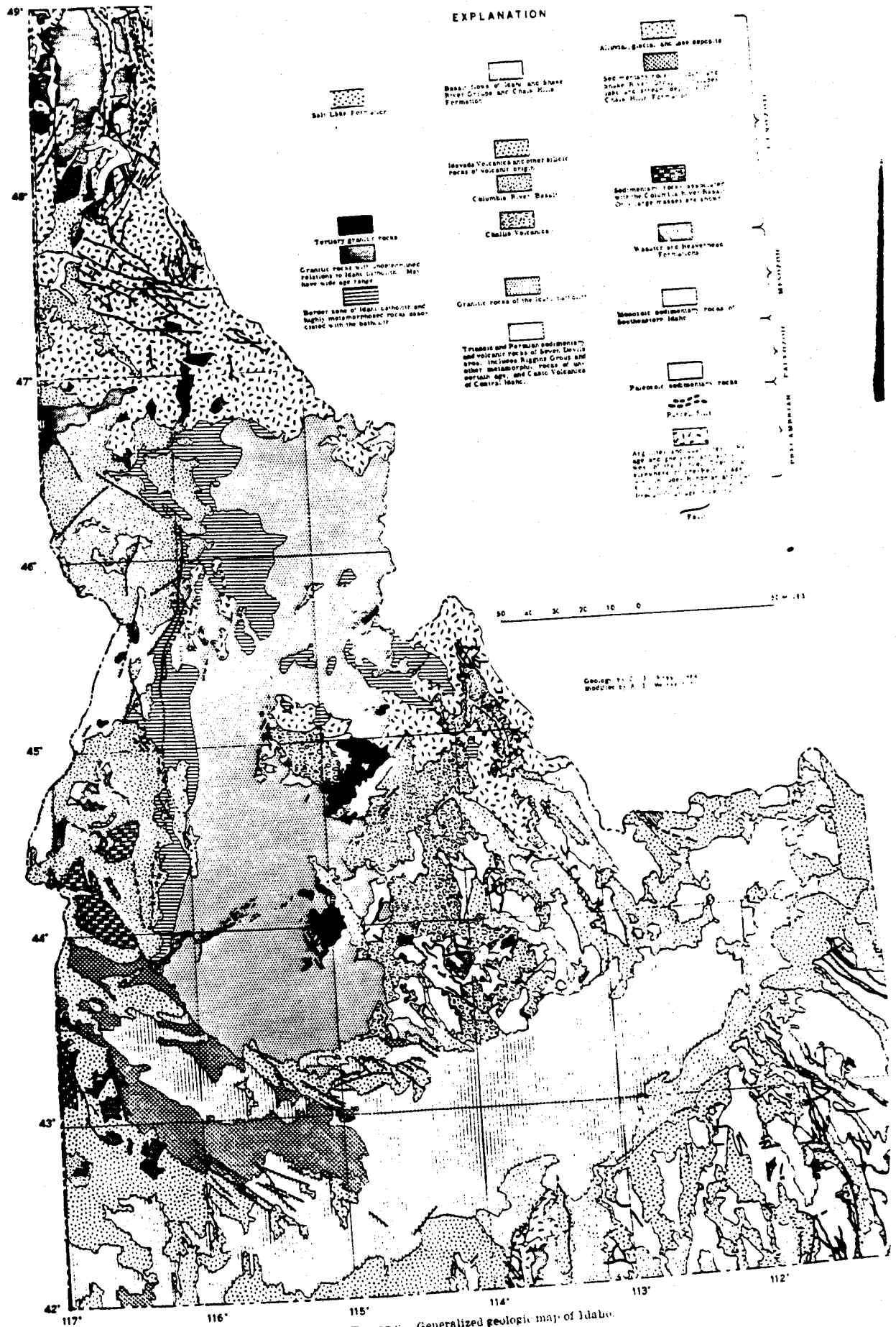
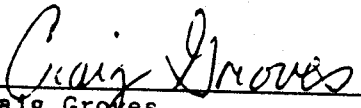


Figure 2. Location of Katka-Boulder Analysis Area. Dashed lines indicate areas searched for Coeur d'Alene salamanders. Dot indicates location of new population.

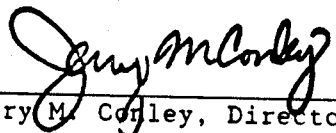
Figure 3. A geological map of Idaho.




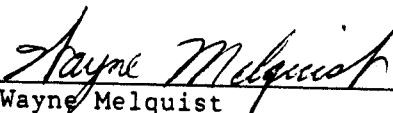
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