

SCHUH'S HOMOPLECTRAN CADDISFLY (*HOMOPLECTRA SCHUHI*) SURVEYS IN SOUTHERN OREGON

FINAL REPORT FROM THE XERCES SOCIETY TO THE
INTERAGENCY SPECIAL STATUS SENSITIVE SPECIES PROGRAM (ISSSSP)

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Surveyors in seep and wetland habitat, Klamath County, OR. Photo by Candace Fallon / The Xerces Society.

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SUMMARY

Candace Fallon and Michele Blackburn (Xerces Society) conducted surveys for Schuh's homoplectran caddisfly (*Homoplectra schuhi*) in late June 2014 in the Lakeview BLM District (Klamath Resource Area) in Klamath County, Oregon. The primary purpose of these surveys was to determine whether this caddisfly occurred on Bureau of Land Management (BLM) land at or near historic localities in southern Oregon. Surveyors visited four locations with spring/seep habitats and successfully collected three individuals of *H. schuhi* from what is believed to be the type locality (the Klamath 1 site) for this species.

INTRODUCTION

Schuh's homoplectran caddisfly (*Homoplectra schuhi*) adults are small (5-10 mm) dark brown or black moth-like insects thought to be associated with springs and seeps. Larvae for this species are unknown but other species in this genus are classified as clingers that spin nets or create fixed retreats (Merritt et al 2008).

Until recently, this species was known from only two records in southern Oregon. However, recent work by area Trichoptera experts has determined additional collections to be *H. schuhi*, expanding the known range for this species up into the Oregon coast range and the Willamette Valley (Ruiter 2014, pers. comm.). The species is now known from at least ten different sites in Oregon and is suspected to be more widespread in southwest Oregon and northern California (Ruiter 2014, pers. comm.). This species is now documented in the Lakeview BLM District and the Siuslaw National Forest, and is suspected on the Fremont-Winema National Forest and the Rogue River Siskiyou National Forest (two collections may be from the RRS or very close to it; the collection locality is too vague to determine the precise locations).

Schuh's caddisfly adults have been collected in the spring and early summer, from late March through July. Larvae are potentially present year-round as some *Homoplectra* species require more than one year for complete development.

In June 2014, Candace Fallon and Michele Blackburn (Xerces Society), with assistance from Johanna Blanchard (Lakeview BLM botanist), surveyed potential habitat on BLM land near a historic locality in Klamath County, OR.

SURVEY PROTOCOL

SITE SELECTION

The type locality for this species is poorly documented, and habitat information for all known records is scarce. Denning (1965) reports the following for the type collection:

"Oregon, Klamath County, 10 miles southwest of Keno, near Klamath River, spring seepage area between the Big Bend Dam Power House and the Frain Ranch, on the west side of the Klamath River, collected May 16, 1963 by Joe Schuh and Donald Denning, 2 male and one female adults."

BLM biologists familiar with the Klamath River Canyon's terrain selected four survey sites for this project: two spring/seep areas that fit the type locality description, and two additional seep/spring areas that were identified during their spring 2013 fieldwork as potentially hosting *H. schuhi*.

SURVEY PERIOD

The flight period of *H. schuhi* in Oregon is suspected to occur from March through July, depending on location and elevation. However, this caddisfly has been identified from a wide range of elevations (from nearly sea level to potentially 6000 ft.) across its range. Prior collections in this area occurred between June 15 and July 30, so we set our survey dates for this period.

SAMPLING METHODOLOGY

We followed the general Trichoptera and species specific survey protocols for *H. schuhi* developed by Foltz (2008) and Fallon (2014). Surveys took place between the hours of 9am and 4pm on still days with minimum air temperatures above 15.5 °C (60 °F). We spent a minimum of 25 minutes (but generally an hour or more) carefully surveying each site, sweep netting vegetation adjacent to the seep and examining the substrate. Individual adult caddisflies were collected by sweep netting, by collecting them straight into a vial, or by using a combination of sweep net and aspirator. Overall, the surveyors found that sweep netting used in conjunction with visual surveys was the most successful method for collecting caddisflies at these sites. Caddisflies observed in flight could be caught midair with a net. Although recommended as a potential survey technique, we did not use beat sheets for these surveys, as we thought that this technique may damage the delicate seep vegetation. Surveyors also searched through the substrate for larvae and pupae of the target genus but were unsuccessful. Immature stages of species in this genus tend to burrow into the substrate, making detection difficult. Moreover, adult males are needed for positive species confirmation, and so search efforts were focused on adults. Representatives of all adult caddisfly species observed were collected for identification by a Trichoptera expert.

SITES SURVEYED AND SURVEY RESULTS

A map of the survey area relative to known *H. schuhi* records from Oregon is provided in Appendix I. See Appendix II for a table of 2014 survey sites and Appendix III for maps of each particular survey area. Below, we provide photos and a brief description of each site visited.

JUNE 25, 2014: WEST SIDE OF KLAMATH RIVER

On June 25, C. Fallon, M. Blackburn, and J. Blanchard surveyed three seep locations on the west side of the Klamath River in Klamath County, OR. Sites 1 and 3 (Klamath 1 and Klamath 3) most closely matched the type locality description provided by Denning (1965). These two sites are within 100 meters of each other and together may represent the type locality.

SITE 1 – KLAMATH 1 (SUSPECTED TYPE LOCALITY)



SURVEY TIME: 09:45 AM – 11:25 AM (100 minutes)

Habitat description: This hillside seep/spring occurs on the upslope and downslope sides of a gravel road. It is heavily vegetated and hosts a noticeably different and denser plant community than the surrounding hillside. Dominant seep vegetation includes monkeyflower (*Mimulus*), columbine (*Aquilegia*), mosses, cow parsnip (*Heracleum*), stinging nettle (*Urtica dioica*), bracken ferns (*Pteridium aquilinum*), gooseberry (*Ribes*), grasses, serviceberry (*Amelanchier*), and mock orange (*Philadelphus*). The tree overstory is composed of oak (*Quercus*), alder (*Alnus*), and Douglas-fir (*Pseudotsuga menziesii*), fringed by the dominant Ponderosa pine (*Pinus ponderosa*) found throughout this river canyon. Runoff from the seep collects in a small ditch running parallel to the road and is directed under the gravel surface via a culvert. Both sides of the road were searched. Seep substrate includes loosely packed rocks ¼" to 2" diameter in addition to duff, downed wood, mosses, and forbs. Water flow is a low trickle through the substrate, mostly subsurface, and was recorded at 9-10° C (48-50 °F).

Human impact: This site is directly adjacent to a gravel road, and seep runoff is directed through a culvert to the other side of the road. Traffic appeared minimal during our surveys but passing vehicles could contribute to dust deposition on roadside seep habitat.

Collections: Three *H. schuhi* adults (2 males and one female) were collected from the upslope seep area (all of which were initially determined by Bob Wisseman and verified by David Ruiter). One of these was collected with a sweep net midair, one was collected directly into a vial from the ground, and the third was found already dead in seep vegetation. Adults of two other relatively common species (*Dolophilodes novusamericanus* and *Rhyacophila ecosia*) were also collected.

SITE 2 – KLAMATH 2



SURVEY TIME: 1:08 PM – 2:18 PM (70 minutes)

Habitat description: This is a small seep at the base of a rocky, Ponderosa pine dominated hill. The seep source appears to be an eroded area of the hillside. Water from this source flows downhill into a small, man-made catchment pool and then makes a 90 degree turn into a wetland area with tall grasses, sedges, teasel, and invasive Armenian blackberry (*Rubus discolor*). This wetland area runs like a trough between the hill and a small elevated bank that sits between the wetland and the Klamath River. The catchment area and surrounding small pools are overgrown with watercress (*Nasturtium officinale*). Available substrate includes small rocks, decomposing duff, sand, and silt. Water temperatures here were higher than at the other west river sites, at 14° C (58° F).

Human impact: The seep has been diverted with rocks, resulting in a small catchment pool. The site is downslope of a gravel road.

Collections: Multiple larvae and pupae of the bushtailed caddisfly *Gumaga griseola* were seen throughout the wetland area, several of which were collected. Only one adult caddisfly (the widely distributed *Helicopsyche borealis*) was collected despite persistent sweep netting through adjacent vegetation.

SITE 3 – KLAMATH 3 (SUSPECTED TYPE LOCALITY)



SURVEY TIME: 3:07 PM – 3:35 PM (28 minutes)

Habitat description: This large rocky seep just 100 meters from the Klamath 1 site displays many of the same plant species but has a much higher water flow and fewer forbs in the darker parts of the seep. Canopy cover is dense over the central area of this seep, with the more open canopy similar to Klamath 1 found only on the margins (see photo, left, above). Water flow is not subsurface at this site like it is at Klamath 1; instead it flows over the substrate of barren or moss-covered rocks. The overstory is composed of Ponderosa pine, alder, serviceberry, and mock orange. Undergrowth at the seep is very sparse in the shaded area – mostly needle duff and monkeyflower. Water flows from the seep into a ditch along the side of the road. The water temperature at the time of our survey was 10° C (50° F).

Human impact: There is a noticeable, well-worn path from the road to the main seep flow, suggesting the area is well used by animals and potentially other people. We attempted to survey this site directly after surveying Klamath 1 but we encountered a man shaving his head (with shaving cream) in the seep. He appeared to be on foot, and when we returned to survey the site later in the day there was no sign of him.

Collections: We did not observe or collect any adult caddisflies at this site. This may be due in part to a light misty rain that was falling during the survey; the survey was ultimately cut short by increasing rain. We did observe larvae of several species of case maker caddisfly, ranging from those that construct cases of small stones to those that utilize twigs and small pieces of bark.

JUNE 27, 2014: EAST SIDE OF KLAMATH RIVER

On June 27, C. Fallon and M. Blackburn surveyed one difficult-to-reach seep location on the east side of the Klamath River in Klamath County, OR.

SITE 1 – KLAMATH 4



SURVEY TIME: 10:53 AM – 11:48 AM (55 minutes)

Habitat description: This site is located in a flood plain of the Klamath River and is comprised of a hillside seep flowing into a small stream and marshy wetland area. The seep canopy is predominantly shrubs, including mock orange, hardhack (*Spiraea*), and willow (*Salix*). The adjacent wetland is dominated by cattails, sedges, reeds, and teasel. A small pool and trickling stream has formed below the seep, and this is covered in a mat of watercress. This is a relatively open site. The surrounding forest canopy is composed of Ponderosa pine and oak. Green algae is growing on the rocks and muck in the shallow pool below the seep. The substrate is mostly composed of small rocks and organic muck. Deer droppings were abundant in the pool and a game trail was evident crossing down from the road, across the seep, to the marsh. Relatively low numbers of aquatic macroinvertebrate species were observed, although *Juga* snails were abundant. Some planarians and odonate nymphs were also observed. Water temperature of the shallow pool and seep flow was 18° C (64° F). In the nearby marsh and open areas, abundant butterflies, dragonflies, and damselflies were observed flying, mating, and feeding. Showy milkweed (*Asclepias speciosa*) is scattered throughout this area, particularly just to the north of the marshy area, with approximately 100 plants noted. At least 15-20 monarch larvae and two adult males were observed in the vicinity.

Human impact: This site is located on a slope directly below a gravel road. Numerous truck tracks were observed running all through the marshy wetland area (although not through the hillside seep/spring area itself).

Collections: No caddisflies of any species or life stage were observed at this site.

RECOMMENDATIONS FOR FUTURE WORK

This rare species appears to be patchily distributed throughout its range, and additional surveys are recommended in similar habitat at or near known record locations throughout southwest Oregon, the Coast Range, and the Willamette Valley. On the Lakeview BLM District in particular we recommend revisiting the two suspected type locality sites (Klamath 1 and Klamath 3) to gather more information on species abundance and basic life history requirements. Any additional seep/spring sites identified in the district should also be surveyed during the appropriate adult flight period (April through July) to determine presence or absence of this species.

The immature stages of *H. schuhi* are still unknown and have not been described. Future surveys should target not only adults for positive species identification but also larvae and pupae, where possible. Care should be taken to not negatively impact the delicate seep habitat that these animals depend upon. Research is needed to identify diagnostic characters useful in separating the larvae of all described *Homoplectra*. DNA analysis of fresh material within the genus may be particularly useful given the relatively subtle differences in morphological characteristics of this genus. Specimens collected during 2014 surveys were all preserved in 95% ethanol to facilitate future DNA analysis. At present, minor variations in male genitalia are the basis for species designations; taxonomic review may ultimately lead to synonymization with older described species (Wisseman 2003).

ACKNOWLEDGEMENTS

We are grateful to Matthew Broyles (Lakeview District BLM) for selecting the spring/seep sites to survey and providing excellent maps and directions to those sites. Johanna Blanchard (Lakeview District BLM) assisted with surveys and plant identification at three of the sites. We are thankful to two caddisfly experts: David Ruiter, who provided a photograph of the target species as a field reference and shared his determinations of occurrences throughout the state, and Bob Wisseman, who provided expert advice on how to survey for this species and identified the specimens collected during our surveys. We thank Sarina Jepsen for final review of this report.

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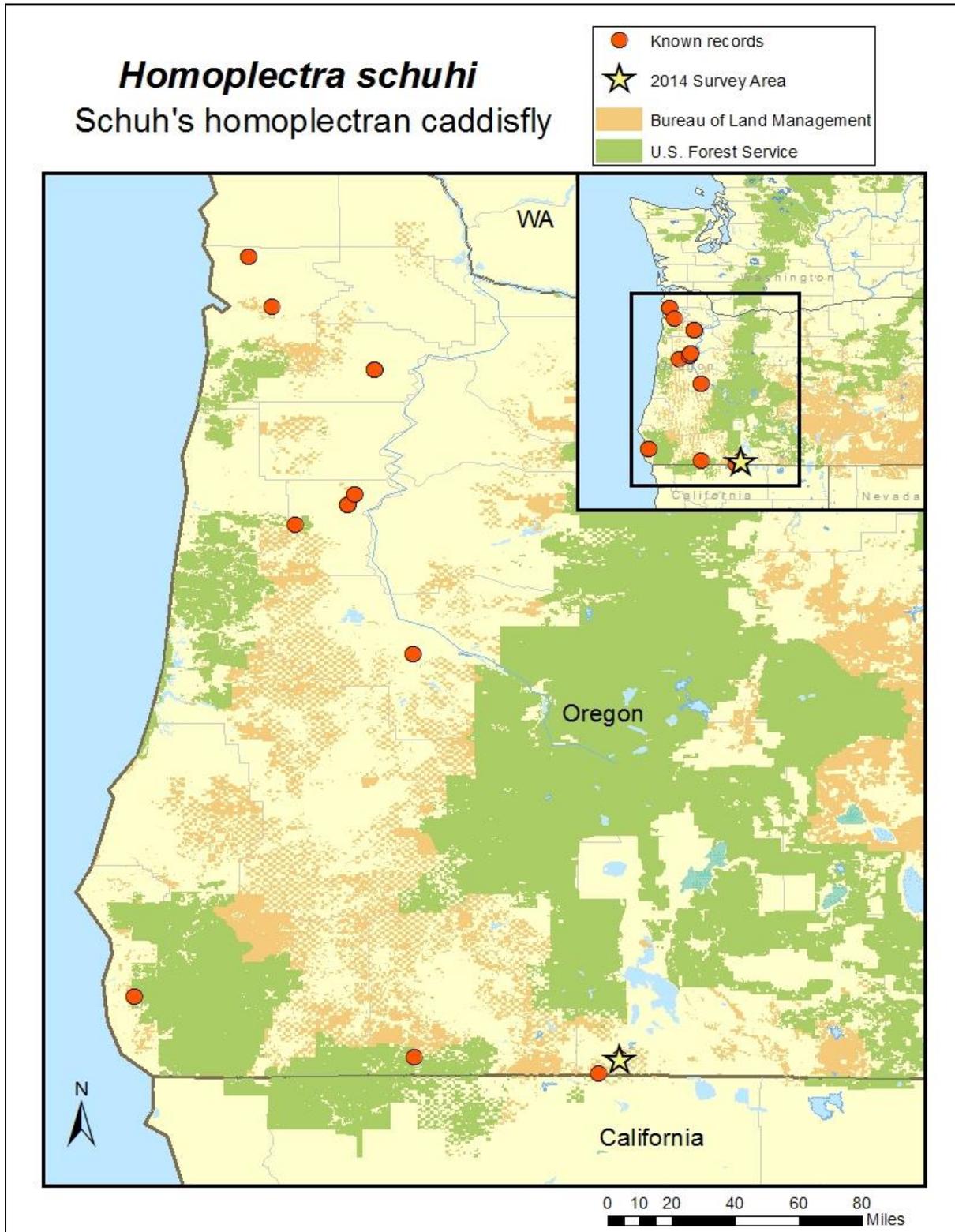
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APPENDIX I: MAP OF KNOWN *H. SCHUHI* RECORDS IN OREGON



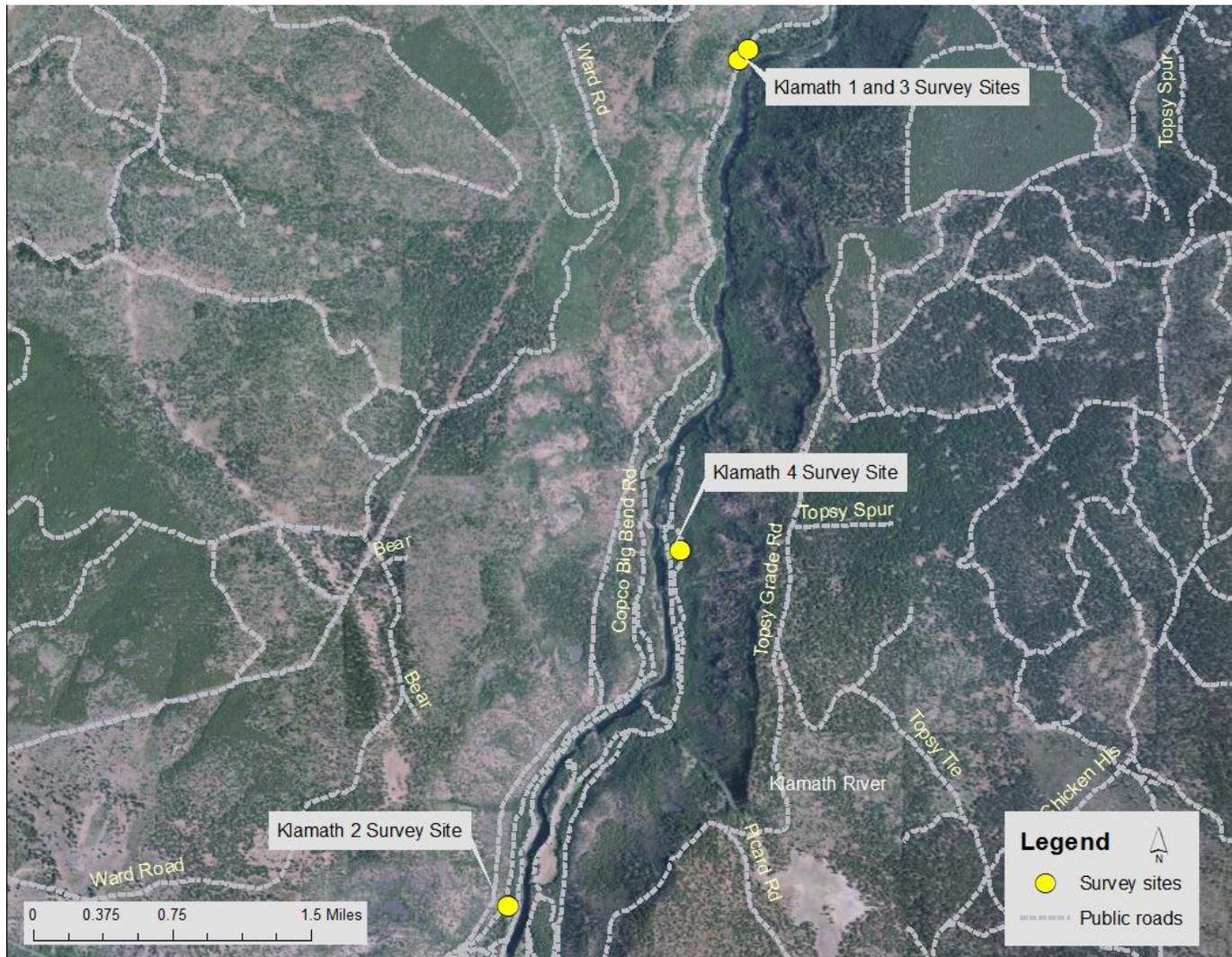
Area surveyed for *H. schuhi* relative to known records, Jun 25 and 27, 2014.

APPENDIX II: TABLE OF ALL SITES SURVEYED IN 2014

*All sites are located in Klamath County, Oregon. Target species are listed in **bold**.

Survey Date	Forest or District	Survey site	UTME (NAD83, Zone 10)	UTMN (NAD83, Zone 10)	Survey area (acre)	Elev. (ft.)	Species collected
25-Jun-14	Lakeview BLM, Klamath RA	Klamath 1	575756.4	4658830.3	0.29	3370	<i>Homoplectra schuhi</i> (3 adults), <i>Dolophilodes novusamericanus</i> (1 adult), <i>Rhyacophila ecosia</i> (3 adults)
25-Jun-14	Lakeview BLM, Klamath RA	Klamath 2	574335.0	4653347.3	0.30	3160	<i>Gumaga griseola</i> (3 pupae, 2 larvae), <i>Helicopsyche borealis</i> (1 adult)
25-Jun-14	Lakeview BLM, Klamath RA	Klamath 3	575804.3	4658928.1	0.24	3380	None
27-Jun-14	Lakeview BLM, Klamath RA	Klamath 4	575405.0	4655679.6	0.67	3200	None

APPENDIX III: MAPS OF 2014 SURVEY SITES



All Lakeview BLM District survey sites.



Klamath 1 and 3 survey sites (June 25, 2014) – suspected type localities.



Klamath 2 survey site (June 25, 2014).



Klamath 4 survey site (June 27, 2014).