Kinnikinnick Native Plant Society, Inc.
P.O. Box 1092, Sandpoint, ID 83864 www.nativeplantsociety.org

January 14, 2023

Sandpoint Ranger District
1602 Ontario St.
Sandpoint ID, 83864

Attn Doug Nishek:

Re. Comments on the proposed Chloride Gold Restoration Project #60856

The Kinnikinnick Native Plant Society (KNPS) is an active and large group (100 + members) based in Bonner County since the late 1990s. We educate the public about the benefits of native plants, work to identify and protect sensitive plant populations, and engage the public and institutions in the support of native flora, from small to forest-sized landscapes. We appreciate the opportunity to comment on the proposed Chloride Gold Project.

Clustered Lady's Slipper (*Cypripedium fasciculatum*)

For a number of years KNPS member volunteers helped monitor the clustered lady's slipper (*Cypripedium fasciculatum*) population noted in the Chloride Gold Scoping Notice:

> "Populations of clustered lady's slipper (a state listed S3 species), have also been identified within the project area. These populations provide opportunities for monitoring the effects of various vegetation and fuel treatments on the species while still affording ample conservation protection measures. Refer to the proposed action map."
>
> (Scoping Notice, p. 7)

Cypripedium fasciculatum (*Cyfa*) is classified as a:
Sensitive Species, U.S. Forest Service (USFS) Northern Region
Sensitive Species, USFS Intermountain Region
Sensitive Species Type 3, U.S. Bureau of Land Management
Vulnerable (S3), Idaho Department of Fish & Game (IDFG)

It is found in three other Idaho counties (i.e. Kootenai, Shoshone, and Idaho), in a total of six locations on the IDFG database <https://idfg.idaho.gov/species/observations/list?species_id=60586>. The Bonner County location is not listed in the IDFG database. The USFS has not listed it on the IDFG website presumably to forestall poaching or other disturbance. We appreciate this reticence and hope it continues.

The *Cyfa* population appears to be located on a very steep slope, well below easy access, just

northeast of Burn 1 on the Proposed Action map. However, since the map detail makes the exact location of the *Cyfa* population uncertain, we recommend that its location be verified before any actions are taken in that location. Based on our earlier evaluation of the site, there is abundant tree and shrub cover, and the soils are undisturbed. The forest canopy is varied, but includes few, or possibly no, seral species, as sunlight is scarce in the deep canyon. Douglas fir (*Pseudotsuga menziesii*) seems to be a typical tree reportedly found near *Cyfa* elsewhere. There is some speculation that the fungus that produces root rot in *P. menziesii* is beneficial for *Cyfa* (Hadley, 1982). We would also like to understand what impediments exist between populations of *Cyfa*, and any steps that might enhance connectivity and exchange of genetic material among these populations.

KNPS strongly urges that the Project carefully follow the conservation strategies laid out in the 2003 report, CONSERVATION STRATEGY FOR CLUSTERED LADY'S-SLIPPER ORCHID (CYPRIPEDIUM FASCICULATUM) IN U.S. FOREST SERVICE REGION 1 prepared for the IPNF by J. Lichthardt of IDFG (Lichthardt, pp. 16-21). We strongly suggest that monitoring take place before any disturbance and continue annually for at least four subsequent years. (Lichthardt, p. 23) The report indicates that monitoring 10+ years after disturbance would be advisable, and we recommend that as well. Specifically, we recommend the following "Project design considerations" from Lichtardt (p. 20-21):

> "The following elements should be considered when developing a project design compatible with long-term viability of *Cyfa*. These elements are related specifically to timber harvest and prescribed burns, and may not be applicable to other types of projects. These relate only to A- and B-ranked occurrences (metapopulations).
>
> - Seed-source populations. These should be protected from the direct and indirect affects of management. Populations consisting of numerous, closely aggregated clusters are of the highest conservation priority within the metapopulation area.
> - Buffers. Buffers should follow a design that incorporates the pattern of subpopulations to be protected, suitable habitat, and landscape features.
> - Seral stage. Within the metapopulation area, large tracts of forest in mid to late seral stage should be maintained. Generally this means the dominate species is the climax species (or potential natural vegetation) and the dominate size class is greater than 9 inches dbh.
> - Fire pattern. Management should emulate a natural landscape pattern created by fires of variable intensity.
> - Fire severity/intensity. Low severity/intensity fire is least likely to kill rhizomes or consume the duff layer.
> - Decayed down logs and duff layer. These should be maintained within the area of the occurrence (both occupied and unoccupied habitat) appropriate to the habitat type(s).
> - Future recruitment of coarse woody debris.
> - Harvest type. Shelterwood and selective cuts can be used in portions of A- and B-ranked occurrences, retaining tree canopy cover appropriate to the species' habitat within the forest type (dry vs. moist).
> - Ground disturbance. Ground and soil disturbance should be minimized during management activities in suitable and occupied habitat.
> - Weeds. Certain activities such as prescribed fire, timber harvest and recreation may increase weed spread. Treat noxious weed infestations that may threaten *Cyfa* and provide mitigation measures to reduce weed spread during management activities.
> - Documentation. All prescriptive elements connected to *Cyfa* conservation should be

documented in the silvicultural prescription and burn plan.
- Monitoring. Baseline and post-treatment data from permanent plots will allow adaptive management."

See Attachment 1 at the conclusion of this comment letter for a more complete excerpt of the relevant portions of Lichthardt's (2003) report.

KNPS requests to be included in meetings that specifically identify conservation strategies for the population of *Cyfa* in the project area and any action plans implemented. Additionally, we would be interested in continuing to support the ongoing monitoring efforts.

We could comment more extensively on *Cyfa*, but feel that the Lichthardt (2003) report provides outstanding background and specific actions to protect our important populations of clustered lady's-slipper, and so, will not repeat it here. We urge following all the recommendations contained in Lichthardt's report.

Whitebark pine

With the listing of whitebark pine (*Pinus albicaulis*) as a threatened species under the Endangered Species Act by the U.S. Fish & Wildlife Service on December 14, 2022, every effort should be taken to protect these trees in the project area. It is imperative that whitebark pine habitat that is adjacent to the burn units or even part of these burns be enhanced and not degraded by fire. Reintroducing fire to whitebark pine habitat can be beneficial, as long as it is of low intensity. Therefore, we support "site-prep [of] some burn units to protect whitebark pine from fire-caused mortality." (Scoping Notice, p. 8)

Other comments

Slope steepness:
The project area includes exceptionally steep slopes. What are the plans for preventing erosion and landslides on these steep slopes? Are the seral species noted in scoping appropriate in areas where sunlight is limited by these slopes? Have these areas been scoped and what is the plan for areas with limited potential for sunlight?

Forest composition:

> "Much of the landscape is composed of mature forest structures, however, long-lived seral species, particularly western white pine and western larch, have been replaced by Douglas-fir, grand fir, western hemlock, lodgepole pine, and subalpine fir. This type of homogeneous forest composition and structure can be a setup for severe, large fire and insect disturbance events (Hessburg et al., 2005)." (Scoping Notice, p. 1)

We were interested to read that a forest composed of five tree species is considered "homogeneous" – a new definition for us. What is the meaning of "homogeneous" in this context? This forest type is potentially susceptible to fire and survives in more shade than do western white pine and western larch. Some of the canyons in the Chloride Gold Project are well suited to the current forest type. That should be taken into account in the detailed planning process.

Improving forest landscape resiliency:

> "We also need to expand the acres where hardwoods such as quaking aspen, paper birch, and cottonwood are significant components; these species play important ecological roles in our forests such as providing wildlife habitat." (Scoping Notice, p. 5)

KNPS supports this goal.

Sediment sources:

> "Decrease sediment sources to maintain or improve water quality and aquatic habitat." (Scoping Notice, p. 6)

KNPS supports this goal.

Long-term transportation needs (Scoping Notice p. 6):

a) KNPS suggests adding that transportation routes should minimize the spread of noxious weeds.
b) KNPS strongly suggests that any roads removed from use be monitored on foot and sprayed for weeds for several years following closure. You will only find weeds where you look. Without following up, you may assume success without achieving it. Although project equipment will be washed, others will use open roads and introduce and spread weeds. Weeds are one of the greatest risks to our native plants, and people and machinery are prime vectors.
c) KNPS also suggests minimizing the number of roads left open to reduce weed introduction vectors.

We thank you for the opportunity to comment on the Chloride Gold Project and will gladly supply future comments on this needed project.

Sincerely,

Preston K. Andrews, Ph.D.
Vice-President, Kinnikinnick Native Plant Society

Literature Cited:

CONSERVATION STRATEGY FOR CLUSTERED LADY'S-SLIPPER ORCHID (CYPRIPEDIUM FASCICULATUM) IN U.S. FOREST SERVICE REGION 1 by Juanita Lichthardt, Conservation Data Center, June 2003, Idaho Department of Fish and Game, Natural Resources Policy Bureau. Report prepared for: Idaho Panhandle National Forests <https://idfg.idaho.gov/ifwis/idnhp/cdc_pdf/cyfa_final.pdf>

Hadley, G. 1982. Orchid mycorrhiza. Pages 83-118 in: J. Arditti, ed., Orchid Biology–Reviews and Perspectives. Vol. II. Cornell University Press, Ithaca, NY. (From Lichthardt, p. 9)

Additional References:

Management Recommendations (BLM) for Clustered Lady Slipper Orchid (*Cypripedium fasciculatum* Kellogg ex S. Watson), v. 2.0 by J. Seevers and F. Lang, December 1998 <https://www.blm.gov/or/plans/surveyandmanage/MR/VascularPlants/section9.htm>

Clustered Lady's Slipper (*Cypripedium fasciculatum* Kellogg ex S. Watson), by Matt Brown for U.S. Forest Service <https://www.fs.usda.gov/wildflowers/plant-of-the-week/cypripedium_fasciculatum.shtml>

Attachment 1

CONSERVATION STRATEGY FOR CLUSTERED
LADY'S-SLIPPER ORCHID (CYPRIPEDIUM FASCICULATUM)
IN U.S. FOREST SERVICE REGION 1

by Juanita Lichthardt
Conservation Data Center, Idaho Department of Fish and Game
Natural Resources Policy Bureau, 600 South Walnut, P.O. Box 25
Boise, Idaho 83707; Steve Huffaker, Director
Report prepared for: Idaho Panhandle National Forests
June 2003

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THREATS

Research and field observations indicate the primary threats to survival of Cyfa are those that result in overstory removal or soil disturbance. Plants can also be killed by underburns, but these are less likely to eliminate entire populations. Based on observations made in the Cascade Mountains, Knecht (1996) thought that reducing tree canopy cover to less than 60% would be deleterious to population vigor. Because of its shallow rhizomes, Cyfa is likely susceptible to physical disturbance caused by timber projects or fire suppression activities. Minor leaf herbivory is common, but does not appear significant. Collection and trampling of plants at campgrounds and along trails is a serious but mostly localized threat. Exotic weeds are uncommon in Cyfa habitat. Where they do occur, they are patchy and associated with soil disturbance and roads. Road and trail building and slash pile burning are vectors of weed movement into Cyfa habitat.

CONSERVATION STRATEGY

Goals
The overarching goal of this Conservation Strategy is to maintain Cyfa within viable metapopulations throughout its range in Region 1. On a local scale, this requires the maintenance of well-distributed populations in metapopulation areas where they currently exist, and providing for both current and future suitable habitat within the metapopulation area.

Issues
In general, Forest Botanists need to 1) assess the conservation status of Cyfa within their management units, 2) look for opportunities where judicious use of prescribed fire and silvicultural treatments can be used to restore or improve habitat conditions, 3) assess the effects of Forest projects on viability of local populations, and 4) provide guidelines for the mitigation of project effects. Potential management needs include prescribed burning, to bring fuel loads to more natural levels, and weed control. Projects commonly affecting Cyfa on a population or metapopulation scale include road construction, various types of timber harvest, stand thinning, prescribed fire, mechanical fuels treatment, and herbicide spraying.

Management considerations

The following generalizations arise from previous sections on the habitat and ecology of Cyfa and are related to its response to management actions.

Seral stage. It is very likely that Cyfa increases in numbers and distribution with increasing stand age and development, and, as suggested by Harrod (pers. comm.), may be thriving in some areas under conditions of fire suppression. As stands age they become patchy and multilayered, allowing more light to the forest floor and building up deeper duff layers and rotted wood that provides a medium for a rich fungal network.

Fire regime. In dry-forest habitat, Cyfa occurs in stands that are multi-aged, with remnant large trees often present (Appendix D). Historically, these stands burned frequently in wildfires of variable intensity. Many stands in these habitat types may be outside the range of natural variability and prone to severe, stand-replacement fires. These situations present opportunities where prescribed fire and

silvicultural practices might be used to restore or improve habitat conditions.
In moist-forest habitat, where plants are associated with partial to deep shade, Cyfa may be adapted to a longer fire interval. Following a stand-replacing fire, long time periods may be required for recolonization by plants surviving in shaded refugia of drainage bottoms.
Canopy opening. Cyfa requires some level of shade. Sixty-percent tree canopy cover has been recommended as a minimum level by researchers working in the Cascade Mountains (Knecht 1996). Increased solar radiation causes early senescence, curtails seed production, and, in excessive amounts, will apparently kill plants. However, in dry forests, many Cyfa sites have much less than 60% tree cover (Applegate, pers. comm.) and it can apparently persist under a tree cover less than 30% (Lavelle, pers. comm.). Shrub cover may be important under these conditions. Nothing is known about the ability of seedlings to establish under these levels of radiation.
Fire. The shallow rhizome of Cyfa makes it susceptible to a ground fire that is hot enough to consume the duff layer (Knecht 1996; Harrod et al. 1997; Shelly, pers. comm.). However, it seems resilient to fires of light and moderate severity that leave some duff.
Patch size. Increased solar radiation can also result from opening the canopy adjacent to Cyfa-occupied habitat and creating a forest edge. In situations where occupied habitat is to be excluded from management, the question arises as to how much buffer should be allowed around the population. If habitat conditions are to remain relatively constant, it should be large enough that the population is not within the zone of edge effects. The width of this zone is dependent to some extent on edge physiognomy (forest structure) but primarily on aspect (Chen et al. 1995), with the widest zone on south-facing edges.
When determining patch size for protecting Cyfa, connectivity between subpopulations, opportunities for expansion of the population, and the potential existence of non-emergent plants should also be considered. Due to the sparse distribution of Cyfa, densities as high as 10 clusters per 40 acres are rare, and large patch sizes will be required to protect a number of clusters (subpopulations).
Seed source populations. In moist forests, the distribution of Cyfa is aggregated along stream courses, including intermittent streams, where fires burned less hot and left more forest cover. Stream courses may have served as refugia from which plants spread as forest regenerated in adjoining burned areas. This does not appear to be the case in dry forest types where plants may have survived in forested islands or under cover of shrubs. In order to ensure metapopulation viability, management of stands with Cyfa, in both moist and dry forest types, should be limited to areas where plants are well-distributed and where vigorous populations can be identified and protected as seed sources.
Maintenance of genetic diversity. Aagaard et al. (1999) found a low level of genetic differentiation among local (geographically proximal) populations, which likely corresponded to subpopulations by our definition. Given this, it is important to maintain habitat continuity among populations. One objective of management should be to maximize habitat continuity within populations in order to facilitate gene flow and provide opportunities for expansion. Populations consisting of many closely aggregated subpopulations will be most resistant to genetic drift and are of the highest conservation priority.
Woody residue is important to maintaining soil organic matter, microorganisms, and mycorrhizal fungi. Some level of standing-dead and downed trees must be maintained following salvage or harvest operations in order to manage for an optimum soil environment for mycotrophic species such as Cyfa, as well as regenerating trees.
Soil disturbance. The shallow rhizome system of Cyfa makes it susceptible to physical disturbance during management projects and fire suppression activities. With regard to forest management in Cyfa habitat, Seevers and Lang (1998) state: “Avoid activities that alter soil, duff, down wood, and the mycorrhizal community in the habitat area.”
Fungal symbionts. Effects of burning and/or logging on mycorrhizal fungi are complex, but it appears that these activities influence diversity and species composition more than simple abundance (Borchers and Perry 1990). We still have no knowledge of the degree to which mycorrhizal fungi may limit the distribution and establishment of Cyfa. However, we can manage for soil conditions conducive to a diverse soil microbiota, including maintaining logs of various decay classes, minimizing physical soil disturbance, and providing for recruitment of large woody debris.

Definitions

Abundance rank: Abundance ranks are based on the estimated number of genets in the occurrence: A (>200), B (50-200), C (10-50), and D (<10). These are indicated in Appendix C and in Appendix B, maps 3-5.

Priority occurrences for protection: These are primarily peripheral or isolated relative to the regional distribution of the species or to other occurrences within the administrative unit. Occurrence size (number of genets) is not really a consideration. Larger, well-structured metapopulations may actually warrant less protection. Small (C and D-ranked), apparently isolated occurrences might not be considered viable, but may represent the only seed source for a large area and are usually easily protected. These smaller occurrences are also important for maintaining geographic distribution at National Forest and higher scales.

Small, peripheral occurrences such as Canfield Butte on the Fernan District, Idaho Panhandle NFs, should be considered high conservation priorities. They could too easily be lost from a combination of human disturbance and natural events. Such peripheral populations, especially in variant habitat, may contain important genetic diversity. Prescribed burns and fuels reduction in adjacent stands may benefit the orchid by decreasing the risk of a hot burn, but precautions must be taken to protect these populations from project impacts.

Other peripheral and isolated occurrences with high conservation priority include: Piper Creek (MT 005), Granite Creek/Fall Creek (ID 094 and 031), and Mannering Creek (ID 015).

Seed-source populations: In large metapopulations where management is planned, priority populations should be identified based on a high density of subpopulations (e.g., 5-10 per 80 acres). If individual clusters are lost or diminished as a result of management, these populations, along with any protected in stream buffers, can provide seed sources for recolonization or avenues for gene flow. Seed-source populations can be selected for a combination of plant density and potential for protection.

Metapopulation: As used here, refers to an aggregation of populations within the landscape, on a scale smaller than a 6th field watershed–usually just a portion of such a watershed–and often confined to a 3rd or 4th-order drainage. Some of the larger known metapopulations have been fairly well-defined by extensive survey. There may be many scattered outliers between metapopulations. Where clusters are widely scattered, landscape features such as ridges and rivers might be used to delineate metapopulations.

Approach

The approach of this Conservation Strategy relies heavily on abundance rank (A to D; Appendix C) as an indicator of metapopulation vigor and habitat quality. Viability of the metapopulation is also related to the number and density of subpopulations, threats, habitat fragmentation, and other unknown factors. However, A-ranked occurrences tend to be well structured, with numerous subpopulations separated by distances of less than 0.5 mile, and thus more resilient to disturbance than small, isolated occurrences. This approach allows more latitude in management within the more vigorous and resilient occurrences. A drawback to this approach is that abundance ranks are partially the result of the extent of survey and the way in which occurrences have been delineated.

To effectively use this approach it may be necessary to review occurrence records and evaluate whether their organization is consistent across the Forest and whether abundance ranks accurately reflect metapopulation vigor (e.g., also consider habitat continuity and disturbance).

The approach outlined below utilizes abundance and degree of isolation to determine the level of protection required, particularly when some type of forest management is desired.

1. Use the known Region 1 distribution of occurrences (Appendix B, Maps 3-5) to identify peripheral and outlying occurrences that will have a high priority for protection and monitoring. (See definition in preceding section.)
2. Use local distribution and abundance data to identify priority occurrences for protection and monitoring by district.
3. For A- and B-ranked occurrences:
   a) Evaluate habitat and identify any opportunities where prescribed fire or silvicultural practices might be used to restore or improve habitat conditions.

b) Evaluate the need for monitoring, changes to data organization (the way in which sightings are grouped into occurrences), or additional survey.
c) For management activities within A and B-ranked occurrences (metapopulations):
   i) Review project design considerations below during development of a site-specific management prescription.
   ii) Designate protected seed-source populations (see definition above)
   iii) Establish monitoring

4. For C- and D-ranked occurrences:
   a) Identify areas for additional survey based on the known distribution of Cyfa and potential habitat.
   b) Consider whether occurrence is part of a larger metapopulation. Consider continuity of habitat and distance to nearest known occurrence, with 0.5 mi as a possible criterion for separation.
   c) Within project areas where significant canopy reduction is planned: protect within large patches (40-acre optimum) where possible, allowing a forested buffer that will minimize edge effects.

Project design considerations

The following elements should be considered when developing a project design compatible with long-term viability of Cyfa. These elements are related specifically to timber harvest and prescribed burns, and may not be applicable to other types of projects. These relate only to A- and B-ranked occurrences (metapopulations).

- Seed-source populations. These should be protected from the direct and indirect effects of management. Populations consisting of numerous, closely aggregated clusters are of the highest conservation priority within the metapopulation area.
- Buffers. Buffers should follow a design that incorporates the pattern of subpopulations to be protected, suitable habitat, and landscape features.
- Seral stage. Within the metapopulation area, large tracts of forest in mid to late seral stage should be maintained. Generally this means the dominate species is the climax species (or potential natural vegetation) and the dominate size class is greater than 9 inches dbh.
- Fire pattern. Management should emulate a natural landscape pattern created by fires of variable intensity.
- Fire severity/intensity. Low severity/intensity fire is least likely to kill rhizomes or consume the duff layer.
- Decayed down logs and duff layer. These should be maintained within the area of the occurrence (both occupied and unoccupied habitat) appropriate to the habitat type(s).
- Future recruitment of coarse woody debris.
- Harvest type. Shelterwood and selective cuts can be used in portions of A- and B-ranked occurrences, retaining tree canopy cover appropriate to the species' habitat within the forest type (dry vs. moist).
  Ground disturbance. Ground and soil disturbance should be minimized during management activities in suitable and occupied habitat.
- Weeds. Certain activities such as prescribed fire, timber harvest and recreation may increase weed spread. Treat noxious weed infestations that may threaten Cyfa and provide mitigation measures to reduce weed spread during management activities.
- Documentation. All prescriptive elements connected to Cyfa conservation should be documented in the silvicultural prescription and burn plan.
- Monitoring. Baseline and post-treatment data from permanent plots will allow adaptive management.

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Monitoring

Monitoring can be done at various levels appropriate to the objectives. To detect management impacts and adapt management practices accordingly, permanent plots are important, ideally with baseline data

collected prior to management. Marked plants, or some explicit definition of a genet, should be used to detect mortality, and monitoring must extend out at least 4 years from the time of disturbance. Long-term (>10-yr) data are the most needed. Plots currently in place should be carefully marked and monumented for revisiting after long time periods.

There is also need for a broader, multi-occurrence monitoring protocol that would help us understand trends across larger areas and augment the fine-scale demographic data now being acquired. A sample subset of populations or clusters could be monitored using GPS technology and rare plant sighting forms or some modification of these.