

**Conservation Agreement for
Cooks lomatium (*Lomatium cookii*)
In the Illinois Valley**

December 18, 2002

**Medford Bureau of Land Management and the
U.S. Fish and Wildlife Service**

Conservation Agreement for *Lomatium cookii* within the Illinois Valley

This conservation agreement is directed at providing protection and enhancement of Cook's lomatium (*Lomatium cookii* [Kagan]) and its habitat on lands managed by the Medford District, Bureau of Land Management (BLM). Cook's lomatium is currently listed as endangered pursuant to the federal Endangered Species Act of 1973, as amended (Act). At present, Cook's lomatium is listed as Endangered by the State of Oregon and is ranked as a G1S1 (Globally and State Imperilled) species by the Oregon Natural Heritage Program.

All of the known occurrences of the species occur in Jackson and Josephine Counties of southwestern Oregon. All of the known populations in Jackson county occur on non-federal lands in vernal pool habitat within the Agate Desert. Most of the known populations of Cook's lomatium in Josephine County occur on federal lands in seasonally wet meadows of the Illinois Valley. These federal lands are managed by the Medford District, Bureau of Land Management.

The major goal of this agreement is to reduce threats to the species and to assure that viable populations of Cook's lomatium will be maintained on BLM-managed lands. In addition to protecting this species and its habitat, occurrences of other important local and regional plant species, including *Plagiobothrys bracteatus* (bracted allocarya), *Horkelia congesta* (Josephine horkelia), *Calochortus uniflorus* (large-flowered star tulip), *Limnanthes gracilis var. gracilis* (slender meadowfoam), and *Erythronium howellii* (trout lily) will be conserved by this agreement.

I. SPECIES CONCERNED

Lomatium cookii Kagan (Cook's lomatium)

II. INVOLVED PARTIES

U.S. Fish and Wildlife Service

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III. AUTHORITY, PURPOSE, OBJECTIVE, AND MANAGEMENT GOALS

- A. The authority for the U.S. Fish and Wildlife Service to enter into this voluntary Conservation Agreement derives from the Endangered Species Act of 1973 (Act), as amended; the Fish and Wildlife Act of 1956, as amended; and the Fish and Wildlife Coordination Act, as amended. The BLM has the authority to enter into this agreement from the Act and the Federal Lands Policy and Management Act of 1976 as amended.
- B. The purpose of this agreement is to formally document the intent of the parties involved to protect and conserve Cook's lomatium and its habitat within the Illinois Valley.
- C. Management Objectives:
- 1) To maintain stable populations of Cook's lomatium in the Illinois Valley by maintaining and restoring habitat in each of the populations.
 - 2) To reduce threats to the species to assure that viable populations of Cook's lomatium will be maintained on BLM-managed lands.

IV. STATUS AND DISTRIBUTION

Cook's lomatium was first listed as a candidate species, Category 1, for federal listing by the U.S. Fish and Wildlife Service in 1990 (55 FR 6184). Ten years later, in May 2000, Cook's lomatium was proposed for listing as endangered. (Federal Register 65:30941-30951 May 15, 2000). The comment period was reopened on January 14, 2002 (67 FR 1712). The final rule to list Cook's lomatium as endangered plant species was published on November 7, 2002 (67 FR 68004-68015). The plant was listed as endangered by the State of Oregon in 1995 (OAR 603-73-070-1) and is listed as a G1S1 (Global and State Imperiled) by the Oregon Natural Heritage Program (ONHP, 2001).

Distribution of Cook's lomatium ranges from Jackson County to Josephine County, southwestern Oregon. In Jackson County, 13 populations are located in the Agate Desert, where habitat consists of the margins and bottoms of vernal pools. These pools, part of a landscape known as mound and swale topography, form during the winter rains in shallow clayey-gravelly soils over an impervious hardpan, in the flood plain of the Rogue River.

In Josephine County, 25 occurrences of Cook's lomatium are documented occupying

approximately 150 acres of habitat within the Illinois Valley, nearly all on federal lands managed by the BLM. Habitats in Josephine County consist of seasonally wet, grassy meadows in Reeves Creek, French Flat Area of Critical Environmental Concern (ACEC), Fry Gulch, Indian Hill, Rough and Ready Botanical Area, and Woodcock Creek. These sites occupy a total of approximately 61 ha (150 ac), but many of these sites are very small (50 individuals or less). The largest concentrations occur in and around the French Flat ACEC.

Cook's lomatium occurs on soils with alluvial silts and clays deposited over serpentine bedrock. The soils consist of flood plain bench deposits that contain sufficient clay to form a clay pan at 60 to 90 cm (24 to 35 in) below the soil surface (U.S. Department of Agriculture 1983). The clay pan creates seasonally wet areas similar to the vernal pools of the Agate Desert, but mostly lacks the latter area's distinctive mound-swale topography.

The meadows, while alluvial in nature, occur within serpentine substrates, so that the adjacent habitats are typical valley bottom serpentine communities. The meadows are dominated by California oat-grass (*Danthonia californica*) and occur within Oregon white oak - ponderosa pine/ Jeffery pine savanna (*Quercus garryana* - *Pinus/ Ceanothus cuneatus* association). An open shrub layer comprised of wedge-leaf ceanothus (*Ceanothus cuneatus*) and white-leaved manzanita (*Arctostaphylos viscida*) is often interspersed with native and introduced grasses, and forbs.

The historical range of Cook's lomatium, in the French Flat area, likely included seasonally wet meadows along the East Fork of the Illinois River. Fire suppression, grazing, residential development, and extensive gold mine dredging (Shenon 1933) have altered or eliminated Cook's lomatium habitat in this area. However, some native perennial communities remain in wet meadows that were not affected by mining. Gold mining imminently threatens Cook's lomatium at the French Flat sites (Mark Mousseaux, BLM botanist, pers comm., 2002). Because federal lands in the area are open to mining activities under the 1872 Mining Act, the potential for mining activities continues as a threat to occurrences and habitat, especially within the French Flat area.

Since 1994, annual monitoring has occurred for *Cook's lomatium* at three major population centers, which include French Flat, Rough and Ready Creek, and Indian Hill (Lomatium cookii monitoring 1994-2001, Challenge Cost Share, Tom Kaye, Institute for Applied ecology). Results indicate that population size and density at the French Flat sites did not change significantly from 1994 to 1995, but increased substantially from 1995, 1996, to 1997. In 1998, the population remained stable, and then declined in 1999, 2000, and 2001 (see attachments, Figure 1). The total population at French Flat (all patches) is estimated to be 198,293 plants.

At the Rough and Ready site, the population has increased in size or remained relatively stable from year to year since 1994 (see attachments, Figure 2), with the exception of a large decrease in 2000. The total population remained unchanged in 2001, and is estimated to be 1,148 plants.

The Indian Hill population declined in total numbers from 1997 (when monitoring began) to

1998, then has remained fairly stable in since, with small declines and increases since (Figure 3). The total population is estimated as 7,084 plants.

V. PROBLEMS FACING THE SPECIES

A. The present or threatened destruction, modification, or curtailment of the taxa's habitat or range.

The seasonally wet soils where Cook's lomatium grows are susceptible to various land use disturbances. Josephine County populations of Cook's lomatium are threatened primarily by the uncontrolled use of off-road vehicles (ORVs) in the areas occupied by this species, residential development, certain timber harvesting activities (i.e. road building, skidding), and tree encroachment (succession) into open areas associated with fire suppression. Proposed gold mining operations, if initiated would pose a significant threat to existing populations.

Gold Mining Operations: Potential mining imminently threatens approximately 10 percent of the federally owned Cook's lomatium habitat in the French Flat ACEC containing approximately 600 plants in an area under an existing claim (Proposed Rule, Federal Register, 30945, May 15, 2000). The rest of the ACEC is classified as "open" to mineral leasing under the 1872 Mining Act. Proposed and future mining activities could result in direct habitat loss for the species and limit recovery at this site.

Indirect effects from potential mining operations in French Flat could also occur due to off-site activities, such as road construction, which are likely to alter hydrologic cycles at Cook's lomatium habitat sites. These changes could cause seasonally saturated soils to drain and could impede seed germination or lead to death of seedlings and mature plants. Currently, regulatory safeguards are minimal that would protect habitat in the French Flat area from mining operations. If recently proposed mining actions on BLM lands are implemented, and additional areas in French Flat are leased, habitat destruction would be substantially increased.

Off Road Vehicle (ORV) Use: Habitat for Cook's lomatium on BLM-managed land at French Flat continues to experience damage from ORV use. In 1992, heavy ORV use damaged a large wet meadow in this area, creating ruts that punctured the clay pan layer and allowed soil moisture to drain from the wet meadow habitat. Over the past few years, gates erected by BLM to direct ORV traffic away from Cook's lomatium habitat have been repeatedly vandalized, and the intrusion into these areas continues. This has occurred in the spring time when the ground is wet and muddy and Cook's lomatium plants are flowering (Linda Mazzu, BLM botanist, pers comm., 2001).

Heavy ORV use of Cook's lomatium habitat in the area is continuing. Trespass was again documented in 2002 (Linda Mazzu, BLM botanist, pers comm., 2002). To date, ORV use has caused puncturing and draining of 6 ha (15 ac) of meadow habitat in the French Flat population. It is not known how many plants or how much of this habitat was occupied, but plants were

undoubtedly lost (Tom Kaye, Institute of Applied Ecology, pers. comm., 2001). Average densities in occupied habitat run about 5 plants per sq. foot, so the loss of even 1 acre would have been over 200,000 plants. As a result, 20 percent of Cook's lomatium habitat at French Flat has been significantly altered since the 1970's. The BLM has closed the access roads and gated this area, but use continues. Repairing vandalized gates to discourage ORV trespass has repeatedly occurred, but restricting access to this large, open area is difficult (Linda Mazzu, BLM, pers. comm. 2002; J. Seevers, pers. comm. 1998). Areas adjacent to the primary access points have been fenced, but new access points have been created by OHV use, or the fences have been cut. Controlling ORV trespass is a priority and has resulted in increased law enforcement presence.

Residential Development: Residential development and road building in the Illinois Valley also threaten populations of Cook's lomatium. For example, construction of a residential driveway and roto-tilling on private ground extirpated a Josephine County population of this species in 1991 (J. Kagan, pers. comm. 1998). Unsurveyed habitat does exist on private lands, and undocumented populations will likely be lost as development continues in the Illinois Valley through time. Development in Jackson County has resulted in a loss of over 60% of the Cook's lomatium habitat in the Agate Desert (Federal Register, November 7, 2002, pg 68006).

Forest Management Activities / Fire Suppression: The main effect from timber management activities is the associated road construction activities that could change the hydrologic regime of adjacent occupied habitat. In general, forested stands do not provide habitat for Cook's lomatium, but populations are found adjacent to these areas. Surveying for and protecting populations is currently part of any forest management project on BLM lands. Forest management activities on private lands do not have to consider the protection of this species under the ESA, or any State laws.

Several occurrences (Rough and Ready Creek & Indian Hill) are experiencing a slow invasion of conifers and shrubs into the meadows. Historically these sites likely burned fairly frequently. Fire suppression activities have caused an increase in the invasion of trees and shrubs that shade out Cook's lomatium plants and decrease available water (L. Mazzu, pers. comm. 2002).

B. Overutilization for commercial, recreational, scientific, or educational purposes.

Cook's lomatium has no known commercial, recreational, or scientific use at this time. No evidence exists of over collection by botanists and/or horticulturists, however, easy access exists to several of the occurrences, especially the French Flat sites via heavily traveled roads. These sites lack fences or appropriate signs discouraging collectors or others from accessing the plants.

C. Disease or Predation.

No data exist to substantiate whether disease threatens Cook's lomatium. An unidentified Ascomycete fungus was responsible for the mortality of four Cook's lomatium plants in a single population (Kagan 1987). Since this fungus has not been observed at other sites, no conclusions

can be drawn regarding the threat of the fungus to the species as a whole. Predation has been observed on Cook's lomatium from gophers, other rodents, and black-tailed jackrabbits feeding on vegetative portions; wireworms and other insect larvae eat the roots of plants, and insects prey on seeds (Kagan 1987).

Cattle grazing can cause substantial impacts to Cook's lomatium. Areas grazed October to April are less likely to support this taxa. The majority of Cook's lomatium seasonal growth occurs during the winter. If the plants are grazed during the fall, winter and spring, they are less likely to survive to produce seed in the spring or early summer. However, carefully timed grazing, in the fall may be beneficial to Cook's lomatium by the removal of competing annual grasses (67 FR (216) pp68012). Grazing does not occur in the French Flat ACEC.

D. The inadequacy of existing regulatory mechanisms.

State of Oregon wetland laws do not protect many Cook's lomatium sites due to their small size. The Removal-Fill Law of 1989 (ORS 196.800-196.990), administered by the Oregon Division of State Lands, does not regulate activities that involve less than 38 cubic meters (m³) (50 cubic yards (yd³)) of fill. Such an amount of fill could seriously impact many smaller wetlands in which Cook's lomatium occurs. Section 404 of the Clean Water Act may afford some protection through the requirement that parties need to obtain a permit from the US Army Corp of Engineers (Corps) prior to undertaking any activity that would result in the discharge of fill soil in wetlands. The Nationwide Permit which was revised in January of 2002 (67 FR 2020) exempts many small projects if less than 0.5 acres are filled, leaving the small Cook's lomatium sites vulnerable to project impacts. It is the protections under the Act that afford the greatest protection for the species since the Corp must will consult with the Service prior to issuance of a permit where a listed species may be adversely affected by projects.

Cook's lomatium is listed as an endangered species under the State of Oregon threatened or endangered plant law (OAR 603-73-070-1). In general, State-listed plant populations on private lands are not subject to this law. The law prohibits the "take" of State-listed plants only on State, county, and city-owned or leased lands. On these lands, the State law does not guarantee the protection of State-listed plants because it allows for the loss of populations if a proposed project or activity is considered to be a public benefit (Tom Kaye, Oregon State University, pers. comm. 1999). Because Cook's lomatium is listed as an endangered species the BLM can not "...remove or reduce to possession any such species from areas under federal jurisdiction; maliciously damage or destroy any such species on any area; or remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any law...(Section 9, ESA). On lands managed by the BLM, the agency seeks to provide protection to plant populations that may be impacted by a proposed project, either by total avoidance, buffering of populations, or modification of the proposed action. However under the existing mining regulations, mining operations only have to mitigate for federally listed species, which may not include full protection.

E. Other natural or manmade factors affecting its continued existence.

Herbicide spraying, mowing, grading, and other road maintenance activities threaten small Cook's lomatium sites adjacent to roads on private lands near Cave Junction in the Illinois Valley. Catastrophic events, such as stand replacing fire, could eliminate occurrences of Cook's lomatium. Demographic extinction is possible for nine other occurrences of Cook's lomatium, mostly in the French Flat area, because of their small size (fewer than 100 plants). Many of the known French Flat sites are found directly adjacent to roads, increasing the possibility of extirpation.

A recent study on the Agate Desert indicated that nonnative annual grasses, particularly medusahead (*Taeniatherum medusae*) are greater threat to Cook's lomatium than previously believed. Annual grasses die back each year, creating a build-up of thatch which interferes with germination of Cook's lomatium seeds. Without control of non-native annual grasses through mowing, grazing or prescribed burns, Cook's lomatium populations tend to decrease over-time (Darren Borgias, in litt. 2002). These same non-native species are present in the Illinois Valley, and this is a potential problem at these sites as well.

VI. CONSERVATION MEASURES

The BLM agrees to the following:

Manage all Cook's lomatium populations and their associated habitats within the Illinois Valley, to protect their significant biological and ecological values consistent with law, BLM regulations, policies, and existing management plans.

Maintain and install gates and fencing in a functional manner that reduce human activity at Cook's lomatium sites.

Facilitate increased law enforcement patrols and other activities so as to enforce road closures as part of site protection.

Perform site specific vegetation maintenance actions (e.g. thinning, burning) to reduce increasing shrub and conifer cover in occupied habitat, or other actions that could enhance populations.

Ensure that permitted mining activities adjacent to Cook's lomatium sites adhere to all laws, policies and regulations. The BLM will work with the permittee to minimize mining impacts to existing populations.

Where possible, pursue mineral withdrawal within the French Flat ACEC and in other occupied sites on federal lands because of the species' limited range and habitat, and the likely adverse affects of mining.

Where possible, pursue acquisition of private lands supporting the species.

Collect seed for storage at the Berry Botanic Garden Cryogenic Seed Bank.

Evaluate impacts of proposed management actions to all special status species in Environmental Analyses (EA's) prior to implementation. Conflicts will be resolved through consultation, conference, or technical assistance with the U.S. Fish & Wildlife Service, as necessary.

Notify the U.S. Fish and Wildlife Service when mining applications, notices of intent, or plan of operations indicate mining activity within Cook's lomatium habitat.

Continue ongoing quantitative monitoring of the selected populations at French Flat, Rough And Ready, and Indian Hill.

Continue to perform surveys on Federal Lands in suitable un-surveyed habitat to better determine the distribution of this species and to protect populations. New populations found will be reported to the USFWS.

MONITORING

Monitoring Objective: To detect a 30% change in population, subpopulation, or occurrence numbers between sampling periods with a 10% chance of a missed change error and a 10% chance of a false change error.

Declines of more than 30% from the established baseline (in plant numbers and area occupied) at sites identified as critical populations will trigger management actions if the cause of the decline is obvious. Management actions will include whatever activities are most suitable to reduce threats to the populations and stop the population decline. If the cause or causes of the decline is not obvious, it will trigger intensive studies to determine the cause of the decline. Declines of less than (30%) will be considered within the range of natural variation, until such time as the baseline population numbers allow for better assessment of natural variation.

Sampling will occur every other year unless populations drop below the critical 30% level. If this critical level is reached between two sampling periods, then intensive studies will be initiated, in cooperation with the USFWS, and monitoring should occur again the following year.

The Medford District shall report on monitoring results and the implementation of conservation activities to the Oregon Fish and Wildlife Office in Portland, Oregon by the end of each calendar year.

The U.S. Fish and Wildlife Service agrees to:

Assist the BLM in managing Cook's lomatum populations and habitats within the Illinois Valley, and to protect their significant biological and ecological values consistent with current law, regulations, policies, and existing management plans.

Review monitoring data and conservation activities in cooperation with the Bureau of Land Management and recommend changes in the status of Cook's lomatum as appropriate.

Cooperate in cost sharing conservation activities identified in this agreement as funding permits, such as gate/fence maintenance, law enforcement activities, monitoring, and habitat maintenance.

Meet as needed with BLM to discuss the species status and management needs.

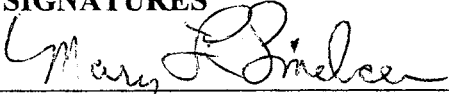
VII. FUNDING OF CONSERVATION MEASURES

At the time of the signing of this conservation agreement the Medford District of the BLM and the U. S. Fish and Wildlife Service have already dedicated funds for a portion of the conservation measures and expect that funding will continue. Monitoring efforts have occurred in the past and are expected to continue to be funded in the future. Funds required for the implementation of these conservation measures may come directly from the funding of staff positions which are expected to remain at or above current levels for both the BLM and the FWS. Both agencies are committed to seeking funding to implement this conservation agreement each year, and will implement conservation measures as funding allows.

VIII. DURATION OF AGREEMENT

This agreement shall become effective with the signature of the last approving agency official and shall remain effect until terminated. It can be terminated in writing at any time that The Medford District of the BLM or the Oregon Fish and Wildlife Office of the U.S. Fish and Wildlife Service determines that the agreement is no longer necessary, with a 30 day notice to both parties.

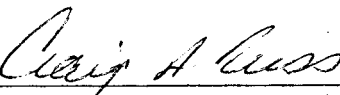
VIII. SIGNATURES



District Manager, Medford District, BLM

11/6/2003

Date



USFWS Field Supervisor, Roseburg Field Office

1/9/03

Date

IX. ATTACHMENTS

References

Figures / Maps

REFERENCES

- Kagan, J. 1994. Habitat Management Plan for *Lomatium cookii* (Cook's desert-parsley) in the Illinois Valley, Josephine County, OR. Unpublished report for the Oregon Natural Heritage Data Base.
- Kaye, T.N. 2000. *Lomatium cookii* Population Monitoring in the Illinois Valley, Josephine County, Oregon. Unpub. Challenge Cost Share report, Oregon Department of Agriculture, Plant Conservation Biology Program, and Medford District BLM.
- U.S. Fish and Wildlife Service. 2000. Endangered and Threatened wildlife and plants; review of plant taxa for listing as endangered or threatened species; notice of review. Federal Register 65 (94):30941-30951 (15 May 2000).
- U.S. Fish and Wildlife Service. 2002. Endangered and Threatened wildlife and plants; Determination of endangered status for *Lomatium cookii* (Cook's lomatium) and *Limnanthes floccosa* ssp. *grandiflora* (Large-flowered woolly meadowfoam) from southern Federal Register 67 (216):68004-68015 (7 November 2002).

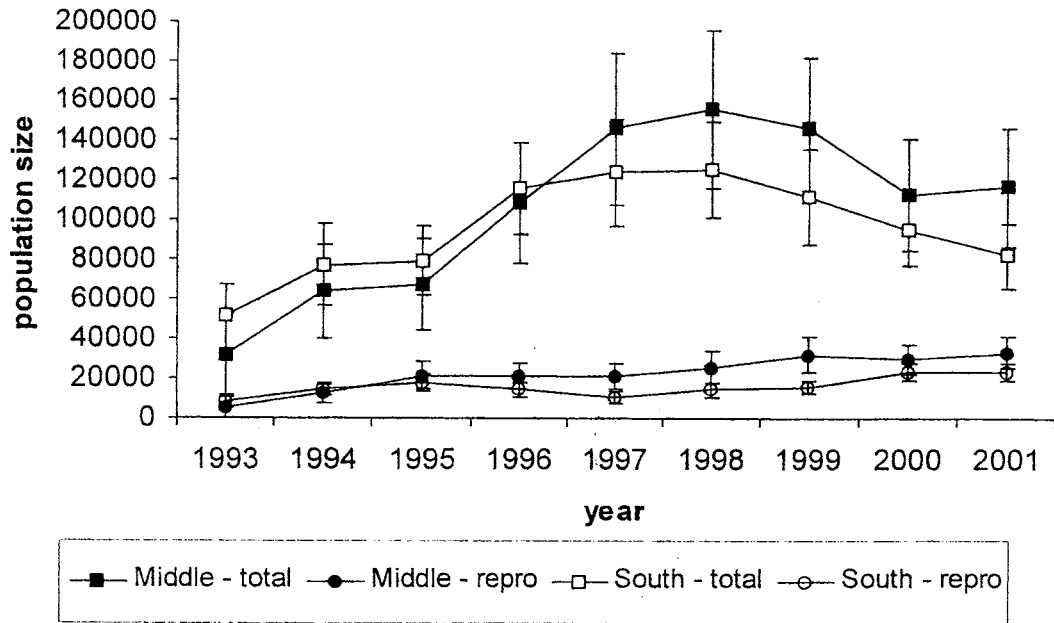


Figure 13. Population trends of *Lomatium cookii* at the South and Middle French Flat subpopulations. Total number of individuals increased through 1998 but declined in 1999 and 2000, while the number of flowering plants has remained relatively stable. In 2001, the population continued to decline at South but held steady at Middle.

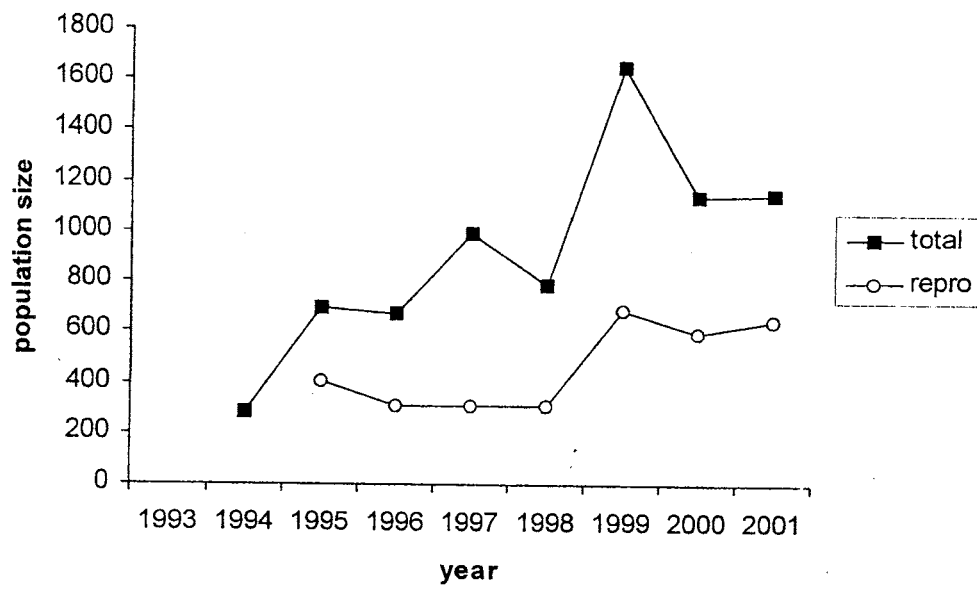


Figure 15. Population trends for reproductive plants and all plants at Rough and Ready Creek.

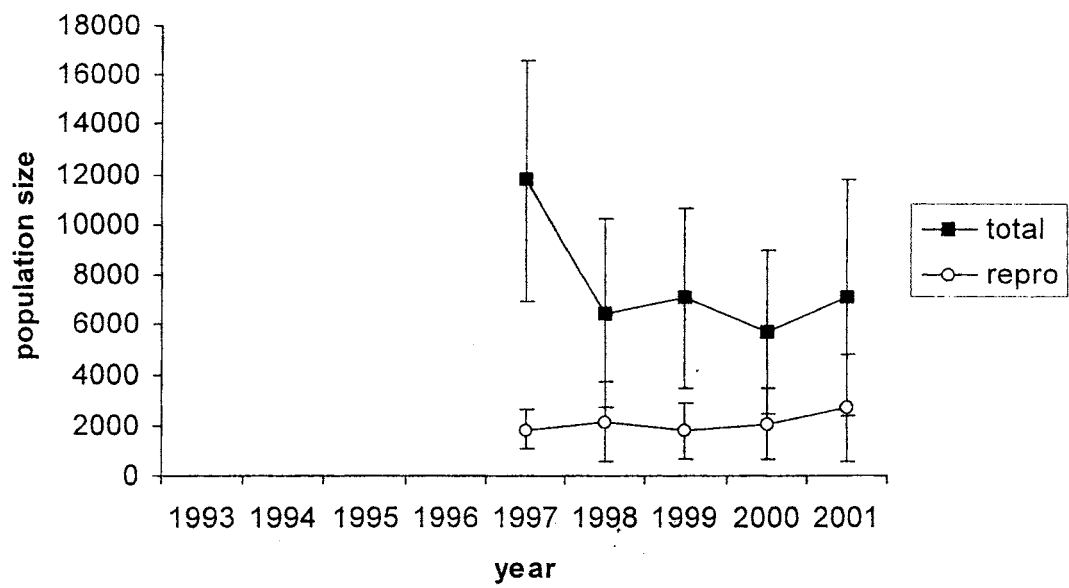


Figure 16. Population trends for reproductive plants and all plants at Indian Hill.