

NORTHERN LONG-TOED SALAMANDER
Grassland/Agricultural Type

General

The northern long-toed salamander (Ambystoma macrodactylum) is locally abundant in grassland-agricultural communities of Ecoregion 2410.

Food Requirements

Terrestrial arthropods comprise 70% or more of the diet of this salamander (Farner 1947; Anderson 1968). Arthropods, such as ants (Hymenoptera), sowbugs (Isopoda), beetles (Coleoptera) and flies (Diptera), are representative of terrestrial prey, and aquatic insects may be eaten when adult salamanders are aggregated at breeding ponds.

Long-toed salamander larvae are pond dwellers and feed primarily on small crustaceans and frog larvae although insects and snails are also eaten (Anderson 1968).

Water Requirements

The long-toed salamander must maintain a moist body surface (Whiteford and Hutchison 1966). During the rainy season, it may be found on the surface. When the habitat dries out, the long-toed salamander becomes subterranean. Water requirements can be met by absorbing water through the skin and through the diet. Permanent or semi-permanent water sources are required for reproduction.

Cover Requirements

During the dry season, adults reside in rodent burrows and other underground excavations (Ferguson 1961). Movement from the subterranean burrows coincides with the onset of fall rains and at this time adults may be found under boards, leaves and other surface debris (Ferguson 1957).

Larvae of this species are aquatic and require permanent or semi-permanent ponds or other bodies of water. Bottom debris, such as logs, may provide cover for the larvae during the winter (Anderson 1967). A pond can be considered optimal habitat for the larvae if it has dense submergent vegetation and bottom debris.

Reproductive Requirements

Northern long-toed salamanders require permanent or semi-permanent bodies of water for reproduction. Courtship and breeding takes place in the water, and eggs are laid on the bottom or attached to submergent vegetation (Slater 1939; Stebbins 1951). Although there is some variation in developmental time (Kezer and Farner 1955), it takes at least one year for larvae to transform into adults. Consequently, the life expectancy of semi-permanent bodies of water must be at least one year to be considered suitable habitats.

Special Habitat Requirements

No special habitat requirements were found in the literature.

Interspersion Requirements

Extensive migrations may take place to breeding ponds during the reproductive season (Anderson 1967). Most breeding ponds in this Ecoregion are located along valley edges, in bottom land locations, or at the margins of oak woodlands (Ferguson 1961).

Special Considerations

Agricultural practices in this ecoregion do not seem to have altered the success of the northern long-toed salamander. As long as breeding ponds are available and edge situations exist, this species should continue to persist in the Willamette Valley and Pudget Trough.

REFERENCES CITED

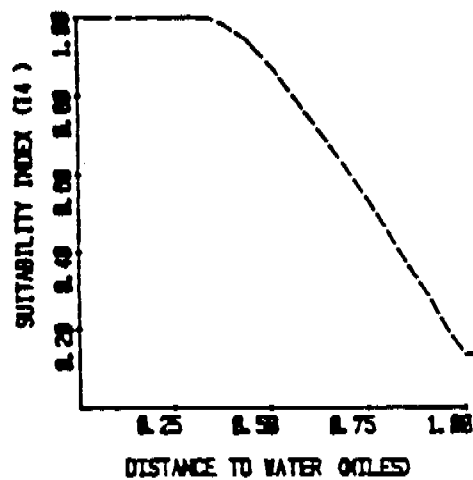
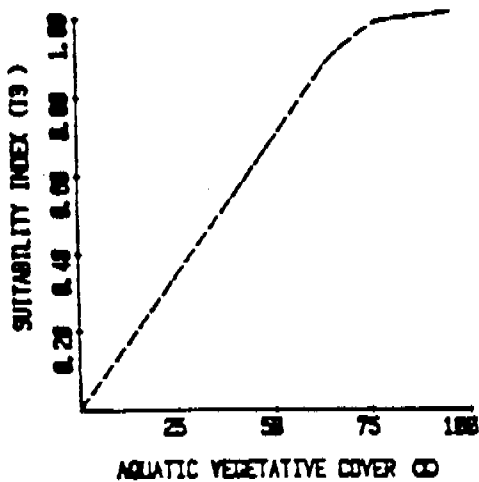
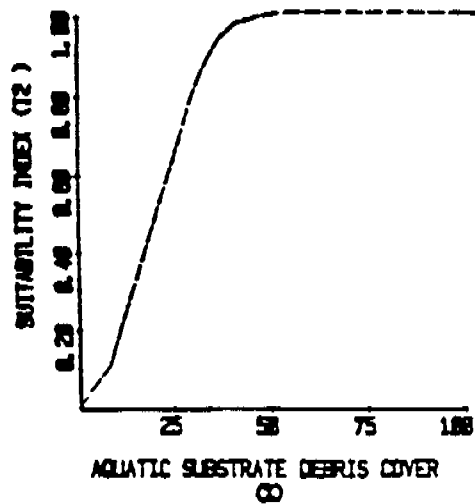
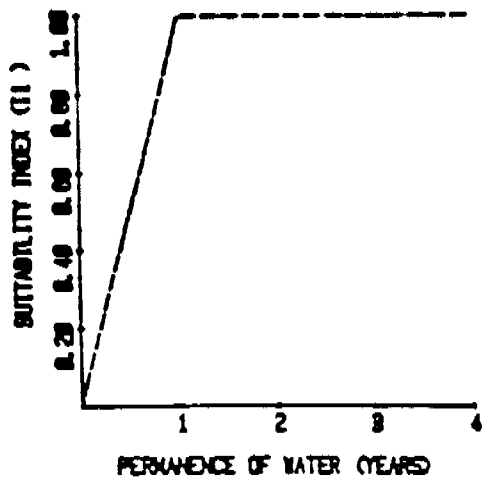
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GRASSLAND/AGRICULTURAL



HABITAT SUITABILITY INDEX

Northern Long-toed Salamander in Grassland/Agricultural Communities

Ecoregion 2410

$$\text{Reproductive Value } (X_1) = \frac{2(I_1 \times I_4)^{1/2} + (I_2 \times I_3)^{1/2}}{3}$$

Where: I_1 = Suitability Index (SI) of permanence of water.

I_2 = SI of percent aquatic substrate debris cover.

I_3 = SI of percent vegetative cover.

I_4 = SI of distance to water.

The Habitat Suitability Index is equal to X_1 .