Defining the critical habitat of the green dragon populations of the St. Lawrence

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Arisaema dracontium (L.) Schott. (Araceae), the green dragon, is a herbaceous perennial rare in Ontario and Québec, which has received a special concern status in Canada and a vulnerable status in the province of Québec. Defining the critical habitat of this species is an importance step for planning its recovery. Of the 24 extant populations known in Québec in 2003, 22 were distributed among 15 different islands of the St. Lawrence River, between Lake St. Louis and Lake St. Pierre, and one was found along a tributary of the Richelieu River. I first tabulate the number of islands on the St. Lawrence River where either one of the suitable habitats for A. dracontium was observed, and where a population of the species was either recorded or not. Then I computed from Bayes' theorem the probability that a population of A. dracontium would be present on an island, given that one of its assumed suitable habitat is present. This analysis indicates that an island was more likely to contain a population of A. dracontium if it contained a forested swamps than if it contained a tall-grass swamp. Tall-grass swamps occurred about twice as frequently as forested swamps among the islands over the studied segment of the St. Lawrence River, but a lower proportion of islands containing the former habitat type also contained a population of A. dracontium. The relatively low probability that A. dracontium is present when forest swamp is present (0.38) indicates however that only a subset of forested swamps may be critical for the species. The total number of individuals by type of suitable habitat may better describes the species' habitat preference than species occurrence only. According to the accumulated data, most individuals have been found on islands containing both forested and tall-grass swamps, with percent of land area covered by spring flood higher than 25%. Islands with only forested swamps or only tall-grass swamps contained 9 % and 8 %, respectively, of the total number of insular individuals surveyed. Identifying the critical habitat of this species will probably require using a finer classification of plant communities.