

## **BEST MANAGEMENT PRACTICES**

### Spotted Turtles and Cranberry Cultivation

Spotted Turtles can be found utilizing cranberry bogs for feeding, aestivating (summer dormancy), hibernating, and breeding.

**Water Level and Turtle Foraging.** Seasonal usage patterns may be influenced by water levels. Spotted turtles will not feed out of water, preventing them from foraging in cranberry bogs during the spring when ditches generally are dry.

**Water Level and Turtle Summer Dormancy.** Spotted turtles aestivate (summer dormancy) in cranberry bogs during summer months. The causes for aestivation are not well-known, but it has been suggested that it is a response to high summer temperatures and the avoidance of desiccation. Natural wetlands utilized by spotted turtles in southeastern Massachusetts (i.e. vernal pools) often dry completely during the summer, or water levels drop and temperatures rise to near 90°F. Cranberry bogs are moistened during the summer months with sprinklers. While the surface of the bogs often appear dry after applications of water, the vines and soil underneath are often moist, and remain so for the rest of the day. Turtles found aestivating in the bogs are buried under the top layer of vines or underneath the edge of the bed along the ditch and are often moist. The air and substrate temperatures at these locations are usually several degrees lower than the surface temperature. Turtles may be attracted to bogs for this reason.

**Water Level and Turtle Winter Hibernation.** Bogs are commonly flooded during the fall (for harvest), which is when turtles are returning to hibernation sites. Hibernation sites are often still dry at this time. Flooded cranberry bog ditches function as hibernacula—safe hibernation sites often used year after year by turtles. Maintaining water in cranberry bog ditches throughout the year could benefit turtles by offering hibernation and feeding sites.

**Water Level and Turtle Nesting.** Turtles are known to nest in and around cranberry bogs. Hatchlings are found in the ditches during late September when bogs

are flooded, and presumably hibernate in the cranberry bog ditches when water is present. Hatchlings have also been observed in the bog ditches in early spring. Maintaining about 1 ft. of water during the winter could help insure that hatchlings hibernate successfully (they cannot withstand freezing temperatures). Flooding the bogs during summer (June –August), however, may destroy some nests present in the bogs, by drowning hatchling and eggs still in the nest.

**Vegetation and Turtle Predator Avoidance.** Maintaining some vegetation (aquatic) in ditches would offer protection to turtles present in ditches.

**Vegetation and Turtle Nesting.** Keeping the upland edges of dikes vegetation-free could benefit turtles by facilitating access to nesting sites. Spotted turtles prefer well-drained and lit, sandy soil for nesting.

**Cranberry Harvest and Turtles.** During harvest, turtles, especially hatchlings, may be drawn into collection devices and become injured or transported off-site. Turtles are often aestivating in the bogs when flooding occurs. In response to flooding, turtles come to the surface and are potentially impacted by machinery. Hatchlings may be very susceptible to this danger, because their size handicaps their ability to avoid machinery and collection devices. Hatchlings have been observed floating amongst beaten cranberries corralled at bog edges prior to collection on the truck conveyor belt. An observer stationed at the conveyor belt could reduce the number of turtles collected.

### **Literature Cited**

Litzgus, J.D. and R.J. Brooks. 2000. Habitat and temperature selection of *Clemmys guttata* in a northern population. *J. Herpetology*. 34(2):178-185.