

STATE  
ENDANGERED

# Clayton's Copper

(*Lycaena dorcas claytoni*)

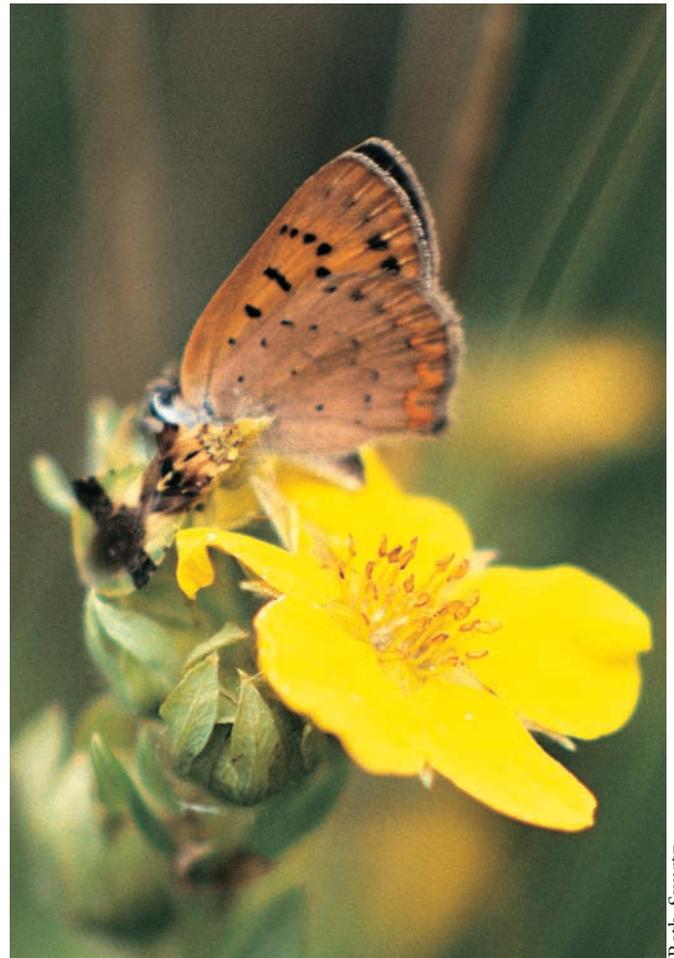
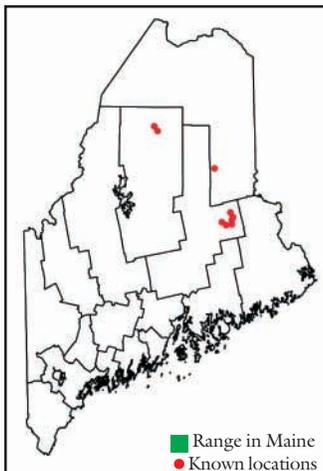
## Description

Maine has an important role in conserving the rare Clayton's copper butterfly. This small metallic purple and bronze jewel is found only in Maine and just over the border in New Brunswick. The Clayton's copper is a small, orange-brown butterfly with a wingspan of about one inch. The upper surface of the wings is mostly brown, with small black spots scattered throughout and a few faint, orange-red spots near the rear angle of the hindwing. The underside is orange-brown, also with scattered black spots, and with light orange markings along the outer margin of the hindwing. Males have a distinguishing purple iridescence over the upper surface of the wings. The Clayton's copper is an isolated subspecies of the more widely distributed Dorcas copper (*L. d. dorcas*), which is typically larger, brighter in color, and has more and larger wing spots.

## Range and Habitat

Although the Dorcas copper ranges across North America from Newfoundland to the Great Lakes states and the Northwest Territories, it is not found in the eastern United States, and it occurs no closer to Maine than the St. Lawrence River/Gaspé region of Quebec. The Clayton's

copper is believed to be a separate subspecies, occupying a very small area centered on eastern Penobscot County. It is currently known from only eleven sites worldwide – nine in Maine and two sites just over the border in New Brunswick. Most populations are concentrated within a 10 square mile area in the vicinity of Lee and Springfield in northeastern Penobscot County, but the butterfly



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is also known from two sites in northern Piscataquis County and one site in southern Aroostook County.

Clayton's copper is found only in association with its sole larval host plant, the shrubby cinquefoil (*Potentilla fruticosa*). This uncommon shrub requires limestone soils and has a scattered distribution throughout Maine. Although not considered rare, there are relatively few cinquefoil stands large enough to support viable Clayton's copper populations. Shrubby cinquefoil is intolerant of shade and can only thrive in open areas. It typically occurs along the edge of calcareous (limestone) wetlands. It can also be found in old fields, but these stands are typically short-lived because of forest succession. All of the currently known occurrences for Clayton's copper are in non-acidic fens and bogs, and streamside shrublands or meadows.

## Life History and Ecology

Clayton's copper butterflies take one year to complete their life cycle. Eggs are laid singly in August on the underside of cinquefoil leaves, usually near the top of smaller plants. Leaves and eggs drop to the ground in autumn, and the eggs overwinter. The pale green larvae hatch in spring and crawl back up the plant to feed on its leaves. The larva then has five instars, or molts, before it turns into a pupa. Adult butterflies emerge during a period when shrubby cinquefoil is blooming, typically late July through August. Throughout the flight period, Clayton's coppers remain near cinquefoil stands, where the abundant

yellow flowers provide a primary nectar source. Adults are most active during warm, sunny, windless days when they fly short distances to feed and seek mates. They are not strong fliers, and generally fly low over the vegetation.

## Threats

In 1997, Clayton's copper was listed as endangered in Maine because of the extremely limited number, size, and distribution of its populations, the limited availability of its habitat, and its near-endemic status in Maine. Threats to the host plant also threaten the butterfly. Flooding of wetlands caused by beavers or artificial impoundments can destroy eggs, larvae, and stands of cinquefoil. Conversely, water drawdown for irrigation or other purposes can dry wetlands sufficiently to allow trees and shrubs to invade cinquefoil stands. Forest succession is often the most serious threat to both upland and wetland sites, and several of the existing locations are in need of management to ensure continuing suitability for the butterfly and host plant. Aerial insecticide spraying could also directly harm the Clayton's copper. Although collecting is not known to be an issue, illegal poaching could pose a threat. As a state-endangered species, the Clayton's copper is protected from take (possession, collecting, or killing) by the Maine Endangered Species Act.

## Conservation and Management

Clayton's copper was first discovered in Maine and described as a distinct subspecies by A.E. Brower in 1940. Much remains unknown about the life history requirements and conservation needs of both the butterfly and its host plant. Prior to the early 1980s, Clayton's copper was thought to be restricted to a small region of the state near the towns of Lee and Springfield. Surveys for Clayton's copper in the mid-1980s and early 1990s located several new sites, and the butterfly's known range was expanded to the north and east. Only one site, Dwinal Pond flowage in Lee and Winn, is known to support a relatively large population of the butterfly. Because of the rarity of large, persistent stands of shrubby cinquefoil, it is not likely that any additional large populations will be discovered.

The Clayton's copper is listed as endangered in Maine. It is also a former candidate for federal listing. Three of the best sites for the butterfly – Dwinal Pond flowage, Mattagodus Meadows, and Little Crystal Bog – are in conservation ownership and have the greatest potential to be managed for the butterfly. In 2000, MDIFW began studies to assess and monitor the butterfly's population and habitat characteristics at Dwinal Pond flowage. Management efforts will be completed to improve existing stands of cinquefoil and create and maintain new upland stands of the host plant.

## Recommendations:

- ✓ Prior to land development or forest harvesting near wetlands providing habitat for Clayton's coppers, consult with a biologist from MDIFW to assist with planning.
- ✓ Municipalities should strive to maintain areas adjacent to Clayton's copper sites in a low-density, rural setting and

identify these areas in comprehensive plans. Consider protecting wetlands and a 250-foot upland buffer as Resource Protection Districts.

- ✓ Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitat for threatened and endangered species.
- ✓ Follow Shoreland Zoning and LURC standards.
- ✓ To preserve water quality and wetland functions, maintain contiguous, forested riparian habitats at least 250 feet from wetland habitat for Clayton's coppers.
- ✓ Avoid placing roads, houses, yards, and other developments within 250 feet of wetland habitat for Clayton's coppers.
- ✓ When projects are proposed within 250 feet of wetland habitat for Clayton's coppers, adhere to forestry Best Management Practices (handbook available from the Maine Forest Service, SHS #22, Augusta, ME 04333) and Maine Erosion and Sediment Control Recommendations (available from the Maine Department of Environmental Protection, SHS #17, Augusta, ME 04333).
- ✓ Manage encroachment of woody vegetation in cinquefoil stands by removing trees. Maintain upland sites in an early successional stage that provides open, uncrowded growing conditions for shrubby cinquefoil. Managing fields for shrubby cinquefoil near known Clayton's copper sites may help provide additional habitat or establish new populations.
- ✓ Avoid road crossings or use of heavy equipment in streams or rivers.
- ✓ Avoid stream or wetland alteration projects (water withdrawals, dredging, rip-rap, pipeline crossings, channelization, dams) without approval from MDIFW.
- ✓ Avoid the use of broad-spectrum pesticides within ¼ mile of waterways providing habitat for threatened and endangered species.
- ✓ To maintain or improve water quality, conduct thorough reviews of dam and wastewater discharge proposals. Avoid land uses that would contribute to non-point sources of pollution. 🐝