



KANKAKEE MALLOW HABITAT RESTORATION

In April 1999 DCR-DNH biologists conducted a one acre prescribed burn on the globally rare plant, Kankakee Globe Mallow (*Iliamna remota*) (G1Q/S1) on Piney Island, Bedford County. Sixteen individuals of Kankakee mallow were found during post burn monitoring. About half of these appeared to be new recruits while the others were existing suppressed individuals that the burn released by removal of competing vegetation.

On June 3, 1999, Stewardship staff Kevin Heffernan, Paul Clarke, and Rebecca Wilson implemented habitat management at a site in Allegheny County supporting Kankakee Mallow. The work involved brush cutting and hand-pulling competing vegetation, which included Japanese honeysuckle (*Lonicera japonica*) and wineberry (*Rubus phoenicolasius*). The mallow population at this site is the largest known in Virginia, with over 200 stems. Invasive alien vines and the native shrub smooth sumac (*Rhus glabra*) have been invading the site and suppressing Kankakee mallow.

VIRGINIA PINE SIDA-CONSIDERED POSSIBLY EXTINCT-REDISCOVERED

Two populations of a plant species preliminarily identified as Virginia pine sida (*Sida inflexa*) (GH/SH) were discovered on September 14 in Greenville and Sussex Counties by Natural Heritage staff scientists. Until this recent find, the species was believed to possibly be extinct (GH). This relative of hibiscus was first discovered in 1939 by the eminent botanist Merritt Lyndon Fernald near the Nottoway River in Sussex Co., Virginia. Historically, it appears to have only been collected at 5-6 sites in

Southside Virginia (although there are unconfirmed reports from two counties in North Carolina), and has not been seen since 1968.

FEDERALLY ENDANGERED FISH DISCOVERED AT FORT PICKETT

During recent surveys for freshwater mussels at Fort Pickett, DCR-DNH zoologists observed a single Roanoke Logperch (*Percina rex*) (G2/S1S2) (Federally endangered/State endangered) in the mainstream of the Nottoway River. Although previously known from the Nottoway River at several sites, the species had not been recorded within the boundaries of Fort Pickett. The species is primarily known from the upper Roanoke River system, with an outlying population in the Chowan system, which includes the Nottoway drainage. Additional surveys are planned for later in September to locate additional sites for this rare fish within the installation. Two individuals of the state threatened Atlantic Pigtoe (*Fusconaia masoni*) (G2/S2) were also found at a downstream location within Fort Pickett.

RARE MOTHS DOCUMENTED ON WARM SPRINGS MOUNTAIN

Insect surveys by Division of Natural Heritage biologists on Warm Springs Mountain near the resort town of Hot Springs in Bath County have resulted in the capture of many moth species that are more typical of northern latitudes. Recent captures include the stoneroof borer (*Papaipema duplicata*) (GV/SV), a species known previously from two other sites in Virginia and fewer than 20 sites globally, as well as the figwort borer (*Hydraecia stramentosa*) (G4/SV), a predominantly northern species.

RARE BUTTERFLY POPULATION IS RECONFIRMED

Division of Natural Heritage zoologists reconfirmed the existence of a population of a globally rare butterfly in a freshwater tidal marsh along the Chickahominy River in New Kent County. The rare skipper (*Problema bulenta*) (G2G3/S1) was first discovered at this site, its only known Virginia locality, in 1967. The species was last confirmed at the site in 1971. A total of 9 individuals was observed during a limited survey of one marsh. One rare skipper was also documented on the opposite side of the river in Charles City County. Later in the day, additional potential habitat was identified in a tributary stream, but deteriorating weather conditions precluded a reliable survey for the rare skipper. This area will be revisited in the near future. Surveys of other coastal rivers in Virginia during 1999 have so far failed to result in the documentation of new populations of the rare skipper.

GLOBALY UNCOMMON SEDGE DISCOVERED IN SOUTHERN VIRGINIA BLUE RIDGE

The first known Virginia population of DCR-DNH the globally rare Manhart's sedge (*Carex mahartii*) (G3/S1) was discovered on the north slope of Mount Rogers by a Natural Heritage ecologist conducting vegetation surveys and sampling. This species is a narrow endemic of the southern Blue Ridge that was known previously from northwestern Georgia to northwestern North Carolina. Scores of clumps were noted at the Mount Rogers site, growing in mixed northern hardwood forests at elevations from 3800 to 4200 ft.

RARE ANIMALS FOUND ON "THE DRAGON"

Surveys conducted during June along Dragon Run revealed two state rare insects, including the second record in the state for the cypress sphinx (*Isoparce cupressi*) (G3/S5), and the cyrano darter (*Nasiaeschna pentacantha*) (G5/S2), a rare resident of bottomland swamps and streams in the eastern portion of the state. Other species noted during these surveys included red bellied turtle (*Pseudemys rubriventris*), stinkpot

turtle (*Sternotherus odoratus*), northern water snake (*Nerodia sipedon*), northern cricket frog (*Acris crepitans*), Fowler's toad (*Bufo woodhousei fowleri*), and green tree frog (*Hyla cinerea*). All of these species are typical of high quality bottomland forests and streams in Virginia's Coastal Plain.

DCR-DNH Field Botanist Allen Belden recently located an unusual woodland community along Dragon Run in Middlesex County. The community is dominated by hickory and fringe tree and supports woody and herbaceous plant species uncommon to rare for the middle peninsula. These include rusty blackhaw, perfoliate tinker's-weed, and elm-leaf goldenrod. The substrate here is dry sand to sandy loam which appears to be calcium enriched. Located on an upland island, the community is surrounded by a baldcypress swamp forest with two state rare plants – featherfoil (*Hottonia*) (G4/S2) and yellow water crowfoot (*Ranunculus flabellaris*) (G5/S1). The community and rare plants were located as part of a rare species and significant community inventory of Dragon Run.

NEW SMALL WHORLED POGONIA OCCURRENCE FOUND AT QUANTICO MARINE CORPS BASE

Surveys in 1999 for the rare orchid small whorled pogonia (*Isotria medeoloides*) (G2G3/S2) by DCR-DNH field botanists Nancy Van Alstine and Allen Belden at Quantico Marine Corps Base have to date resulted in the finding of a new occurrence consisting of four colonies with a total of 24 stems. This species has been designated as "threatened" by the US Fish and Wildlife Service and as "endangered" by the Commonwealth of Virginia. Eleven occurrences of this species have been previously found on the base. P.J. Harmon, the Natural Heritage botanist from West Virginia, where the orchid has been found at a single site, accompanied DCR-DNH staff on a day of surveys and visits to small whorled pogonia colonies at Quantico to gain experience in searching for this species.

SURVEY FOR SMALL-ANTHERED BITTERCRESS, FEDERALLY LISTED ENDANGERED PLANT SPECIES, CONDUCTED IN PATRICK COUNTY

From late April to mid-May, Field Botanist Nancy Van Alstine and Botanist Steve Killeffer conducted a status survey for the Federally Endangered plant small-anthered bittercress (*Cardamine micranthera*)(G1/S1) in Patrick County. Globally, this member of the mustard family is currently only known to occur in portions of the Dan River drainage in Patrick County, Virginia, and Stokes County, North Carolina. Within this watershed, plants occur in and on the banks of small to medium-sized creeks, especially on gravel bars, mossy rocks, seepages, and wet woods along the streams.

Prior to the 1999 survey, 7 occurrences of this species were known from Virginia. Portions of all of these known sites were revisited, and two previously unknown subpopulations of 200-300 individuals were found slightly upstream or downstream from the known colonies. In addition, surveys were conducted on several creeks not and many of these stream segments were found to contain new occurrences, with populations varying from several hundred plants to fewer than 40. Threats from increased sedimentation, cattle trampling, and beaver dams were noted in many of the drainages. Extensive areas of potential habitat exist throughout much of this watershed, and additional surveys will be necessary to fully determine the status of this rare plant species.

NATURAL HERITAGE INVENTORY REPORT OF KERR RESERVOIR COMPLETED

The final report on the Natural Heritage Inventory of John H. Kerr Reservoir, Virginia and North Carolina, was delivered to the US Army Corps of Engineers at Kerr Reservoir. This two year inventory, conducted in 1997-1998 in cooperation with the North Carolina Natural Heritage Program, resulted in the documentation of 108 natural heritage element occurrences including 51 community element occurrences of 18 community types or subtypes, 43 plant element occurrences of 23 taxa, and 14

animal element occurrences of 12 taxa. Only one federally listed and state listed species, the Bald Eagle (G4/S2S3), was found. No federally listed or Virginia listed plant species were found. The final report includes management recommendations for 29 Conservation Sites that include all but a few of the natural heritage elements found.

RARE BUTTERFLY STUDY PROGRESSING WELL

Zoologists Chris Hobson, Steve Roble and Anne Chazal are monitoring a population of the globally rare regal fritillary (*Speyeria idalia*) (G3/S1) butterfly at a site in southwestern Virginia. This population was also monitored during a portion of the 1998 adult flight period. Whereas only 10 individuals were successfully captured, marked and released in 1998, nearly 60 butterflies have already been identified this summer. The purpose of the study is to determine the phenology, survivorship, movements and habitat use of the adult butterflies, and to identify management strategies that will help ensure the continued existence of this population. The regal fritillary formerly ranged as far east as New England, with confirmed records from nearly 40 counties in Virginia, but this spectacular butterfly is now known from only a handful of sites in the eastern United States. The area under study harbors the second largest remaining population of this species in the East.

MAJOR CONTRIBUTION TO SCIENTIFIC JOURNAL

Several members of the Division of Natural Heritage staff contributed major works to the latest volume of *Bannisteria*, a scientific publication devoted to the natural history of Virginia. This volume was devoted to the Big Levels region of Augusta County, Virginia, an area containing an extremely significant sinkhole pond complex with numerous rare plant and animal species as well as unique vegetation communities. Titles of contributions by DCR-DNH staff include: Descriptive ecology of the Shenandoah Valley sinkhole pond system in Virginia, Plant communities and floristic features of sinkhole ponds and seepage wetlands

in southeastern Augusta County, Virginia, and Dragonflies and damselflies (Odonata) of the Shenandoah Valley sinkhole pond system and vicinity, Augusta County, Virginia.

FORT BELVOIR PROJECT TO AID ECOSYSTEM MANAGEMENT

Field data collection at U.S. Army Garrison Fort Belvoir was recently completed by DCR-DNH ecologists. The data will be analyzed to produce an installation-wide natural community classification. Complete community descriptions and a vegetation map will be included. The classification will allow Fort Belvoir to implement ecosystem management practices on the base. Permanently marked plots will facilitate vegetation monitoring. Projected project completion is April 2000.

WESTVACO PAPER COMPANY VOLUNTARILY DOES GOOD THING

The Westvaco paper company recently announced a five-year deal with the Nature Conservancy that will let the environmental group inspect all of the company's 1.3 million acres of forestland in the eastern states and help designate natural areas where logging will be restricted. The two parties will agree jointly on a management plan for the natural areas identified, including the amount of timber to be cut. Westvaco Chair and CEO John A. Luke Jr. said he hopes others in the industry will make similar agreements to manage forests responsibly. The Virginia Natural Heritage Program will lead the effort to identify significant natural areas on Westvaco's 220,000 acres in Virginia.

ZOOLOGIST ATTENDS AMPHIBIAN AND REPTILE CONSERVATION MEETING

Dr. Steve Roble, Staff Zoologist, was among a select group of scientists and conservationists invited to attend a ground breaking workshop of Partners in Amphibian and Reptile Conservation (PARC), a new, multi-sector conservation partnership that is being modeled after the highly successful Partners in Flight program for Neotropical migratory birds. PARC includes staff of the National Fish and Wildlife Foundation, U.S. Fish and Wildlife Service, U.S.

Forest Service, Savannah River Ecology Laboratory, state wildlife and conservation agencies, and representatives from the private sector (e.g., timber companies, private conservation groups).

The meeting was held June 2-4, 1999 in Atlanta, Georgia. The purpose of the meeting was to identify and prioritize research, management, monitoring, policy, and education outreach needs pertaining to the long-term conservation of the U.S. amphibians and reptiles. Dr. Roble participated in the monitoring discussion group. Each of the five discussion groups developed a detailed list of tasks and strategies relevant to the following six factors that were identified as the primary threats to amphibians and reptiles: habitat loss/degradation, invasive/exotic species, commercial exploitation, toxic pollution, disease/parasites, and global climate change.

APPALACHIAN NATURAL HISTORY FIELD SCHOOL MARKS IT'S THIRD YEAR

Field Botanist Allen Belden and Field Zoologist Chris Hobson joined Gary Williamson, and Angela Thorpe (Virginia State Parks), Dr. Richard Hoffman (Virginia Museum of Natural History), Leroy Koch (U. S. Fish and Wildlife Service), and Mike Pinder (Virginia Department of Game and Inland Fisheries) as instructors for the third Appalachian Natural History Field School. The program was coordinated by Angela Thorpe and in attendance were fourteen "students" from various areas of Virginia and Tennessee.

Sites visited included: Grayson Highlands State Park, Pinnacle Natural Area Preserve, Nash Ford on the Clinch River, Saltville Ponds, Clinch Mountain Wildlife Management Area, and Whitetop Mountain. Dr. Hoffman delivered the keynote speech on the Biogeography of the southern Appalachians at the opening session on Friday; field trips began on Saturday and concluded Sunday afternoon. Botanical highlights include Carolina saxifrage (*Saxifraga caroliniana*) in bloom at Clinch WMA, Canby's mountain lover (*Paxistima canbyi*) at The Pinnacle NAP, Fringed phacelia (*Phacelia fimbriata*), umbrella-leaf (*Diphylleia cymosa*) in

bloom at Elk Garden, and Virginia round-leaf birch (*Betula uber*) near Sugar Grove. Zoological highlights include Magnolia Warblers (*Dendroica magnolia*) at Grayson Highlands SP and a host of other bird species, Weller's salamander (*Plethodon welleri*) at Whitetop Mountain, Yohnalosse salamanders (*Plethodon yohnalosse*) and other rare salamanders near Whitetop, and a variety of fish, mussels, turtles and snakes at Nash Ford. Thanks to all of the staff of Virginia State Parks and other agencies who helped make this year's field school a success.

GOSHEN PASS

As part of the evaluation of DCR's four natural areas acquired in the 50's and 60's, DCR Natural Heritage and Real Property staff visited DCR's 900 acre Goshen Pass on September 8 to determine if the site qualifies for dedication as a natural area preserve. Based upon the presence of Chestnut Oak Forest and High Gradient River exemplary natural communities, Appalachian jewelwing (*Calopteryx angustipennis*) (G4/S2), vetchling (*Lathrus palustris*) (G5/S1), freshwater cordgrass (*Spartina pectinata*) (G5/S2), the site does qualify for natural area preserve dedication and staff will proceed with the dedication process.

THE FUTURE OF HICKORY HOLLOW

DCR-DNH Natural Areas Protection Manager and Locality Liaison met with the Lancaster County Administrator, Bill Pennel and the Economic Development Director, Patrick Small to discuss the next step in the preservation of Hickory Hollow. The Board of Supervisors recently voted to stop plans to develop Hickory Hollow as an industrial site. Mr. Pennel explained that Lancaster County is currently seeking another parcel of land to develop for industrial use. Lancaster County will need to either sell an easement or sell Hickory Hollow outright to obtain funding for the purchase of another parcel. DCR offered assistance in working with Lancaster County to help them reach the goal of making Hickory Hollow a protected natural area.

SUCCESSFUL SPRING '99 PRESCRIBED BURN SEASON

The DCR-Natural Heritage prescribed fire program had a safe and successful spring 1999 season. From April 22 to May 21, DCR and Nature Conservancy (TNC) staff cooperated to burn a total of 140 acres in eight burn units. These burns enhanced habitat for rare plants and animals, and began restoration of rare fire-maintained natural communities including pine-oak sandhills and coastal flatwoods. All burns were conducted in southeast Virginia with the exception of Piney Island, located in the James River near the City of Bedford. Just two months following the Piney Island burn, 72 new stems of Kankakee mallow (*Iliamna remota*) (G1Q/S1) were found. This globally rare plant had not been observed on the island since 1995. Similarly, increases in numbers and distribution of several rare plant species have been observed following burns at DCR's Chub Sandhill Natural Area Preserve (NAP) in Sussex County. A 19-acre burn at Antioch Pines NAP was conducted to reduce fuel loads and enhance pine-oak sandhill forest habitat for rare species. Finally, DCR and TNC crews combined forces to burn at TNC's Piney Grove Preserve in southeast Virginia to enhance habitat for the federally endangered Red-cockaded Woodpecker.

SHOREBIRD PREDATOR STUDY ON VIRGINIA BARRIER ISLANDS

Dr. Ray Dueser from Utah State is currently involved in a project, coordinated through TNC's Virginia Coast Reserve, to study mammalian predator abundance and movements as they relate to shorebird nesting success. Researchers are live-trapping raccoons and foxes, attaching radio-collars to captured animals, and releasing them to study possible movements between the islands and mainland. Dr. Dueser is working on several islands, including Wreck Island Natural Area Preserve, as part of this study. Information from this work will be invaluable for developing appropriate resource management plans at Wreck Island NAP.

DAMERON MARSH NAP RESTORATION PROJECT LAUNCHED

On June 2, DCR-DCR-DNH Stewardship Staff (Rick Myers, Curtis Hutto, Jenn Allen) met with Greg Culpepper of the US Army Corps of Engineers and Linda Crowe of The Nature Conservancy at Dameron Marsh Natural Area Preserve in Northumberland County. DCR will initiate plans for restoration of forested wetland and bayside scrub communities in former agricultural fields at this Chesapeake Bay site. The Corps will provide funding through the Virginia Wetlands Restoration Trust Fund for work to restore hydrology to pre-settlement conditions, control invasive species (common reed, cattail), and plant native species of wetland trees and shrubs on approximately 25 acres at the preserve.

PUBLIC ACCESS IMPROVEMENT PROJECTS COMPLETED AT BUFFALO MOUNTAIN AND POOR MOUNTAIN

Stewardship staff (Rick Myers, Curtis Hutto, Paul Clarke, Claiborne Woodall) met on July 29 with DAC's Gary Hobson and contractor Doug Wells to perform a final inspection of work recently completed at two natural area preserves in western Virginia. Both preserves now have small (5-space) gravel parking areas and short trails for visitor day use. The old fire road to the summit of Buffalo Mountain has been permanently closed to vehicle traffic by placement of large boulders, and evidence of the former fire tower at the summit has been removed.

INVASIVE SPECIES CONTROL AT BETHEL BEACH NATURAL AREA PRESERVE

A pilot control effort of Common Reed (*Phragmites australis*) was initiated at Bethel Beach Natural Area Preserve in Mathews County. Seven small stands of the invasive grass species was mapped and photographed, and then cut to a height of ten inches with a brushcutter. The stands will be allowed to re-sprout, and then will be treated with a selective herbicide that is registered for use in wetland areas. Winter prescribed burning may follow if deemed necessary.

SHENANDOAH VALLEY GROUNDWATER MONITORING NETWORK

DCR-DNH Karst Protection Specialist Terri Brown is presently working with the Division of Soil and Water Conservation, the Geology Department of James Madison University, the Department of Environmental Quality, local farmers and residents of the Shenandoah Valley to establish a groundwater monitoring network in the most heavily farmed and developed portions of this region. Such data is seen as being essential to the accurate assessment of anthropogenic impacts to groundwater, and ultimately, to the accuracy of any watershed models that developed for the karst areas.

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