

Rhode Island Naturalist



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The Role of Herbalism in the Loss of Native Plants of the Northeast

B Y L Y N H A Y D E N

A significant number of plants on the New England Plant Conservation Program (NEPCoP) list (Brumback and Mehrhoff 1996) may be endangered due to their over-collection for use as medicinal herbs, both in the past

and at the present time. Although over-collection represents only one possible scenario for population decline, in the case of medicinal plants, it may be the most critical. Over-collection may be a particularly important factor in species loss if:

- (1) the plant was or is considered a cure-all or panacea (Foster and Duke 1990);
- (2) the plant parts used medicinally such as the roots, bark, or whole plant result in the habitual destruction of large numbers of individual plants (Sheldon et al. 1997); or
- (3) the plant was a popular remedy of both American and European herbalists (Sumner 2000).

I undertook a study to assess the impacts of herbal collecting on plants in the northeastern United States. All plant species listed as endangered, threatened, special concern, or extirpated (or their equivalents—the exact

terminology varies slightly among the states) on current (as of 2001) Natural Heritage Program lists for the six New England states and New York (CTDEP 1998, Enser 2000, MADFG 1998, MEDOC 1999, NHDFL 2000, NYDEC 2001, VTDFW 2000) were compared with plants listed in historic and current herbal texts. The herbal texts, from oldest to most recent, included: Gerarde (first published in 1597 and reprinted in 1633), Millspaugh (1892), Grieve (1931), Erichsen-Brown (1979), Foster and Duke (1990), and Chevallier (1996). Cross-referencing of the two listings resulted in a list of 178 plant species with both historic or current medicinal value and current endangered or threatened status in New England and New York. Of the 576 taxa on the NEPCoP list, there were 62 species that were both endangered and medicinally valuable. This figure represents 10.76% of the NEPCoP list (because the NEPCoP list does not include New York data, New York State endangered medicinals were not included in this percentage). As an additional part of my study, an herbal database was developed that described past and present medicinal use, habitat, parts used, endangered status, and distribution. The complete database and research paper are available in the library of the New England Wild Flower Society.

The information available for directly assessing the impact of collecting is quite sparse. Few records exist on collecting or over-collecting of plants for medicinal purposes. In addition,

there are few data, other than fragments of anecdotal accounts, on how large populations of plants were in the past. Further research is needed in these areas, as well as on the question of the historic range of endangered species.

American Ginseng (*Panax quinquefolius*) is the most salient example of the first category of over-collection: the cure-all. "Panax," from the Greek, means "panacea." Considered an adaptogenic (defined as a botanical that counteracts the effects of physiological and psychological stress) cure-all for over 7,000 years by the Chinese, Ginseng's value to American settlers was mainly economic. It was gathered by both Native Americans and European settlers as a cash crop, driven by Chinese demand after Chinese Ginseng (*Panax ginseng*) became scarce and by an ever-increasing price for dried root (Grieve 1931). *P. quinquefolius* is currently worth approximately \$733 per pound (\$1,100 per kilo) (Chevallier 1996). American Ginseng is listed as endangered in all six New England states; it continues to be harvested from the wild.

Goldenseal (*Hydrastis canadensis*) exemplifies the second category of over-collection practice: parts used. As in the case of *Panax quinquefolius*, it is

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the root of *Hydrastis canadensis* which is used medicinally. “Global market demand for the root of a plant can seriously threaten the continued existence of a species If the entire root is harvested before the plant has gone to seed, it effectively ends the possibility of future growth or regeneration” (Sheldon et al. 1997). The market for Goldenseal, first introduced into England in 1760, and still mainly gathered in the wild, can largely be described as boom-and-bust. Between 1858 and 1908, the price of Goldenseal increased 2500% (Sheldon et al. 1997). In 1905, the annual amount of Goldenseal harvested in North America was estimated at between 200,000 and 300,000 lbs. (Grieve 1931). In the Northeast, *H. canadensis* is endangered in Vermont, Massachusetts, Connecticut, and New York. It continues to be used in herbal medicine to treat yeast infections, digestive ailments, gum disease, morning sickness, and certain cancers, and as a detoxification treatment for addictions to methadone, heroine, and cocaine, making it one of the most profitable herbs in the American market (Sheldon et al. 1997).



Specimen of Large Yellow Lady's Slipper (*Cypripedium parviflorum* var. *pubescens*) collected in North Smithfield, Rhode Island in 1878. Photo: Lyn Hayden, with permission of the Brown University Herbarium.

The third factor influencing over-collection is a plant's popular reputation as a remedy for both early Americans and Europeans, particularly if it was recommended in traditional English herbalism. English-speaking settlers carried the texts of herbalists such as Gerarde and Culpepper with them to the New World. Erichsen-Brown (1979) reported that a copy of Gerarde's *Herball* now at Oxford once belonged to Dorothy Rolfe, the mother-in-law of Pocahontas. From the time of the earliest settlements in New England, herbal medicine followed the practices set out by established English herbalists, and only occasionally those of Native American shamans. Sassafras (*Sassafras albidum*) was found growing in gardens in England as early as 1633 (having been brought to Europe by 16th Century Spanish explorers), and was included in Gerarde's *Herball* (1633) with its medicinal uses. It was also being sold on London street-corners as a tea with milk and sugar (Grieve 1931). Also called the “Ague Tree” (for treating malarial fevers), the roots and oil of *S. albidum* were exported from the New World for treating opthamalia, rheumatism, syphilis, typhus, and skin diseases (Erichsen-Brown 1979). It is still used in herbalism today. *Sassafras albidum* is currently endangered in Maine and Vermont.

The pattern of rarity across the Northeast of plants particularly valued for herbal use is also visible in several other species that are listed as endangered in multiple states in the region (Table 1). Many endangered New England medicinal species, such as American Ginseng, Goldenseal, Large Yellow Lady's Slipper (*Cypripedium parviflorum* var. *pubescens*), Bloodroot (*Sanguinaria canadensis*), and Black Cohosh (*Cimicifuga racemosa*), are presently being targeted by poachers. In addition, a number of current guides to herbalism continue to recommend the use of endangered species such as the Large Yellow Lady's Slipper, although with caveats (Hoffmann 1998, Tierra 1988). “The loss of native medicinal plants from North American habitats now looms as a significant problem, aggravated by the renewed interest in medicinal herbs and the demand for ‘wildcrafted’ rather than cultivated products” (Sumner 2000).

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Table 1. Examples of plant species that are valued for herbal uses and endangered in multiple states in the Northeast.

Species	States where Listed
Butterfly Weed (<i>Asclepias tuberosa</i>)	ME, VT, NH, MA, RI
Indian Paintbrush (<i>Castilleja coccinea</i>)	ME, NH, MA, RI, CT, NY
Small Yellow Lady's Slipper (<i>Cypripedium parviflorum</i> var. <i>parviflorum</i>)	NH, VT, MA, RI, NY
Large Yellow Lady's Slipper (<i>Cypripedium parviflorum</i> var. <i>pubescens</i>)	VT, NH, MA, RI
Stiff Gentian (<i>Gentianella quinquefolia</i>)	ME, NH, MA, CT
Wild Lupine (<i>Lupinus perennis</i>)	ME, NH, VT, MA, RI
Seneca Snakeroot (<i>Polygala senega</i>)	ME, VT, MA, CT
Wild Senna (<i>Senna hebecarpa</i>)	VT, NH, MA, RI, CT

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A Preliminary Survey of Cottontails on Narragansett Bay Islands

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Even the most avid observers of wildlife may not be aware that there are two species of cottontail rabbits in Rhode Island. One is native; one is not. The rabbit that belongs here, the New England Cottontail (*Sylvilagus transitionalis*), is not easily distinguished from the abundant, and introduced, Eastern Cottontail (*Sylvilagus floridanus*). The external characteristics frequently overlap to the degree that the two cottontails appear almost identical.

The New England Cottontail prefers early successional habitats, clearings that have undergone 10–25 years of regeneration, such as shrublands, old fields, or young forests with dense understory vegetation (Barbour and Litvaitis 1993, Goodie et al. 2004, Litvaitis 1993, Litvaitis et al. 2003, Tefft 2002). Shrubby vegetation on the upland edges of riparian lands also provides important habitat for the species (Litvaitis 1993, Walter et al. 2001). Historically, the abundance of this rabbit would have hinged on natural setbacks to mature forest stands caused by fire, storms, winds, flooding, alteration by Beavers (*Castor canadensis*, Litvaitis et al. 1999), or—in coastal areas—salt spray. These factors would naturally cull tall trees, open forest canopy, create clearings, and in general foster favorable New England Cottontail habitat by restarting the successional process (Litvaitis 1993). Fires intentionally set by Native Americans in pre-Columbian times and the early agricultural practices of European settlers may have fostered populations of New England Cottontails by creating clearings or forest-edge habitat (Litvaitis et al. 1999). Farm-associated clearing increased in New England until the mid-1800s, the start of a massive agricultural decline (Black 1950). The shrublands and young forests that replaced abandoned farms provided good habitat for New England Cottontails. By the mid-1900s, however, mature forests covered most of the undeveloped portion of Rhode Island.

In the early 1900s cottontails were being avidly hunted. As a response to decreased numbers of the native species, the Eastern Cottontail was introduced by hunters in the 1930s. At that time the Eastern Cottontail occurred only as far north as western Connecticut (Whitaker and Hamilton 1998). The Eastern Cottontail does demonstrably well in open grassland (Nowak 1999) and is more fecund (USFWS 2004) than the native New England species.

Currently, conditions apparently favor the introduced rabbit. The Eastern Cottontail is able to detect aerial predators

at greater distances than the native cottontail, giving them more time to dash for cover. This ability may make them better adapted to use a variety of habitats including open ground (Smith and Litvaitis 1999) and give them a competitive advantage. Because the relative number of New England Cottontails is decreasing through much of their range—from Maine to the eastern banks of the Hudson River—the decline of the native rabbit is now thought to be severe enough to potentially warrant federal listing. In 1989 the New England Cottontail was listed as a candidate for federal threatened or endangered status (USFWS 1989). On 30 June 2004, the US Fish and Wildlife Service announced its decision to consider listing the species and initiated a 12-month status review (USFWS 2004).

In 2003, we began a preliminary inventory of cottontails on islands in Narragansett Bay. The goal was to find evidence of relict populations of the New England Cottontail in our area. The status of the species on the islands has not been well documented and has, as elsewhere, declined since the introduction and spread of the Eastern Cottontail.

Methods

We surveyed or collected cottontail specimens in 20 localities on Aquidneck, Conanicut, Dyer, Gould, Hope, and Rose Islands. We used a combination of trapping, scavenging road kills, and collecting fecal material to document cottontail occurrences. Traps were set during the day and wire traps were covered with plastic or burlap sacks to provide shelter for captured rabbits. In areas containing coyotes, traps were tied to stakes or trees. Bait consisted of apples cut and placed at the opening and inside the traps. Traps were checked daily for captures.

We used one or more of three techniques to identify cottontails to species:

(1) External morphology was used for field identification of animals that were live-trapped and later released. The standard external characters for identification of New England Cottontails include black-rimmed ears, a black smudge of fur between the ears, and lack of a white “star” on the forehead. Eastern Cottontails elsewhere tend to have a distinct line of white fur on the forehead. We used the formula of Litvaitis and Johnson (2002), which uses ear length, body weight, and presence/absence of the black spot or white star to calculate an index value. A positive value indicates

an Eastern Cottontail, and a negative value indicates a New England Cottontail. In our limited sample, field identification by external morphology was rarely clear-cut. Consequently, we created decision rules with regard to two characters: a) If any (even one) white hair was observed on the forehead we recorded a “white star” as “present,” b) Though most rabbits observed had darker fur in the area between the ears, if the pelage was smoothed back (parallel to the sagittal line) and no clear “spot” was evident, it was scored as “absent.”

(2) Skull characters are believed to clearly separate the two species (Whitaker and Hamilton 1998). We relied on this method for trapped animals that were collected and prepared as specimens. Road kills were collected opportunistically, but, presumably due to numerous coyotes and crows, were less commonly encountered than expected at the outset of the study. We used osteology where possible and preserved tissue samples in 90% ethanol for later DNA analysis (not part of the scope of this study due to budget constraints).

(3) A method developed by researchers at the University of New Hampshire (UNH) to analyze mitochondrial DNA (mtDNA) present in cellular material in rabbit feces has been proven 98% reliable for identification of rabbits in the Northeast (Kovach et al. 2003, Litvaitis and Litvaitis 1996). As part of the regional inventory of New England Cottontails being jointly conducted by UNH and RIDEM (Tefft, unpublished), we were able to have PCR amplification and mtDNA identification conducted for fecal pellets from 10 specimens of cottontails from Narragansett Bay islands. We collected fresh pellets from snow cover in late winter by scooping them directly into sterile collecting jars. These were then delivered to UNH. Other fecal specimens or tissue material that we collected from live-trapped or road-killed rabbits have been preserved for future analysis.

Results

We found evidence of cottontails at 17 of 20 sites surveyed. Three of the sites without cottontails were small islands: Gould, Dyer, and Rose (Table 1, Figure 1). Hope Island was the only small island we visited that had cottontails present. We trapped on the island between 4 and 6 August 2003. Traps were set at two locations: the densely vegetated eastern coast near the jetty, and the northwestern tip of the island just inside the rocky shoreline. There was only one record of the New England Cottontail from the Narragansett Bay area prior to our study: a skull found in 1991 by Glenn Mitchell on Hope Island, subsequently deposited in Yale’s Peabody Museum (Lazell 2001). During our survey visits in August

2003, we found the north end of Hope had abundant evidence of cottontails in the form of trails, browse, pellets, and bones. The one rabbit captured after 48 trap-nights (2% capture success) proved by cranial characters to be *S. floridanus* (Table 2). It appeared intermediate in external morphology, however.

Table 1. Evidence of cottontails at survey sites on six Narragansett Bay islands.

Locality	Area (ha)	Number of Sites	Evidence of Cottontail Presence	Survey Techniques
Aquidneck Island	9901	7	Feces, runways, browse	Trapping, pellet collection
Conanicut Island	2442	9	Feces, runways, browse	Trapping, road-kills, pellet collection
Dyer Island	12	1	None	Visual surveys island-wide
Gould Island	22	1	None	Visual surveys island-wide
Hope Island	30	1	Feces, runways, browse, skeletal remains	Trapping
Rose Island	7	1	None	Visual surveys island-wide



Figure 1. Collection locations for Eastern Cottontail (open circles) and New England Cottontail (filled circles) on the Narragansett Bay islands, 2003–2004. The three small islands without rabbits are shaded in darker gray. The numbers correspond to the localities listed in Table 2.

Table 2. Rabbit survey data for localities on Hope Island, Aquidneck Island, and Conanicut Island in 2003 and 2004, showing the species identification results to date. The numbers in the final column correspond to the locations mapped on Figure 1. NA = specimens collected but not processed. EC = Eastern Cottontail, NEC = New England Cottontail, TBD = to be determined.

Town	Locality	Material Collected	Characters Used for ID			Species	Map #
			External	Skull	DNA		
Portsmouth	Hope Island, north end	skin, skull, ear clip	X	X	NA	EC	1
Portsmouth	Boyd's Lane	pellets			X	EC	2
Portsmouth	Boyd's Lane	pellets			X	EC	3
Portsmouth	Boyd's Lane	pellets			X	EC	4
Portsmouth	Middle Rd.	pellets			NA	TBD	5
Portsmouth	Brayman Lane	pellets			X	NEC	6
Portsmouth	Brayman Lane	pellets			NA	TBD	7
Portsmouth	South of Union St.	pellets			X	EC	8
Portsmouth	South of Union St.	pellets			X	EC	9
Middletown	Hanging Rock Rd	pellets			X	NEC	10
Middletown	Hanging Rock Rd	ear clip, pellet	X		NA	TBD	11
Middletown	Hanging Rock Rd	ear clip, pellet	X		NA	TBD	12
Jamestown	North Rd, Parker Farm	skin, skull, ear clip	X	X		EC	13
Jamestown	Rte 138 x Helm St	head, ear clip	X	X	NA	EC	14
Jamestown	Rte 138 x North Rd	head, ear clip	X	X	NA	EC	15
Jamestown	Rte 138 x North Rd	pellets			X	EC	16
Jamestown	North Rd at windmill	head, ear clip	X	X	NA	EC	17
Jamestown	North Rd, 1/4 mile north of Great Creek	head, ear clip	X	X	NA	EC	18
Jamestown	North Rd, water treatment plant	head, ear clip	X	X	NA	EC	19
Jamestown	North Rd, Great Creek	head, ear clip	X	X	NA	EC	20
Jamestown	Town Beach, East Ferry	head, ear clip	X	X	NA	TBD	21

Of the small islands without rabbits, the northern third of Gould Island still houses a naval torpedo research facility and remains of other structures. The rest of the island is largely overgrown with shrubby vegetation, much of it exotic, e.g., honeysuckle (*Lonicera* spp.), Autumn Olive (*Elaeagnus umbellata*), and Asiatic Bittersweet (*Celastrus orbiculatus*). Beneath the shrubbery are well-cleared trails maintained by nesting and roosting gulls. We saw pellets of deer on Gould Island during our survey on 5 August 2004. Dyer Island differs from Gould by having no buildings and proportionately more salt marsh habitat. It is a lower island with a less-pronounced upland ridge than Gould. Gulls are abundant and have cleared beneath the dense shrubbery as they have on Gould. Rose Island is covered with dense thickets of largely exotic vegetation. Charlotte Johnson, director of the Rose Island Foundation, reports (pers.com.) that the island has no native mammals but does have a reasonably large population of nesting seabirds.

The localities on larger Conanicut Island and Aquidneck Island all had great potential to support either species of cot-

tontail. All had dense, brushy understories and abundant rabbit sign. Though most of the 23 specimens we examined proved to be the introduced species, *S. floridanus*, two samples—one collected in southern Middletown, the other in Portsmouth—were identified by fecal pellet analysis to be *S. transitionalis*. We now know the two species occur sympatrically on Aquidneck island. We have yet to process all the DNA samples and could have as many as three additional New England Cottontails in our present collection (Table 2).

The cottontails we found on the islands were intermediate in external morphology, with a mix of the supposed diagnostic characters: the ears were consistently dark rimmed, there was usually a region of dark fur between the ears, and the white “blaze” or “star” usually consisted of one to several white hairs. We concur with Litvaitis et al. (1991) that identification by pelage is not

reliable. Internally, skull characteristics were consistent with those of Eastern Cottontails on the specimens we examined. The species are not believed to hybridize (Wilson 1981), and through use of DNA analysis and reference to internal skull characters we can, apparently, separate the two.

Conservation implications and directions for further research

The purpose of this preliminary survey was to determine if any residual populations of the New England Cottontail existed and to examine some of the smaller Narragansett Bay islands (some of which currently are not populated by any rabbit) for suitability as potential restoration sites. The survey was by no means exhaustive and more subpopulations may exist around the Bay. The New England Cottontail is currently being considered for inclusion on the Federal List of Endangered Species (USFWS 2004) and information we hope to continue to gather will help determine whether the listing is warranted.

Our next steps will be to identify additional sites supporting the native cottontail on the Bay islands, as well as candidate islands for relocating populations. It appears that some uninhabited islands might be ideal for supporting restored populations of the cottontail and could be very significant to the conservation of the species in Rhode Island. The small islands of Rose, Gould, and Dyer have great potential because Eastern Cottontails and Coyotes (*Canis latrans*) apparently do not occur on them. Much of these islands is vegetated in a dense, brushy, early-successional state, and could provide ideal habitat for relocated cottontails. The two known Aquidneck Island subpopulations, if they are found to support sufficient numbers of individuals, could serve as the initial source for repopulation. We should also attempt to find other remnant subpopulations from which we could translocate founder animals.

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Surveying Butterflies in Rhode Island

B Y E U G E N I A M A R K S

Interest in butterflies in Rhode Island has exhibited brief flight seasons over the years. Collectors from the late 19th and early 20th centuries left few specimens, and little is known of private collections in the state. No central repository of Lepidoptera specimens or field data exists in Rhode Island, perhaps a ripe project for RINHS. Researchers under the auspices of The Nature Conservancy surveyed offshore islands of southern New England, including Block Island, in the early 1980s. Harry Pavulaan from the International Lepidoptera Survey has systematically surveyed the state since the 1980s, has created a check-list of RI butterflies, and is currently working on a publication on the butterflies of Rhode Island. Cumberland resident Walter Bosse has promoted, collected, and collaborated to increase interest in butterfly populations in the state. The RI Butterfly Association has attempted sporadic public outreach, and the RINHS BioBlitz has included butterfly identification in its annual 24-hour survey.

Interest waxed when the population of the Regal Fritillary (*Speyeria idalia*) on the New England coastal islands, including Block Island, was apparently extirpated by the bad timing of a hurricane just at the butterfly's flight season. Monitoring of the Regal Fritillary and documenting its loss heightened awareness of our lack of baseline data about Lepidoptera in Rhode Island.

The Audubon Society of Rhode Island (ASRI), following its mission to "foster conservation of wild birds and other animal and plant life," began to develop nectaries for butterflies at its refuge gardens in the mid-1980s. In the 1990s Audubon publications focused on habitat requirements for larval as well

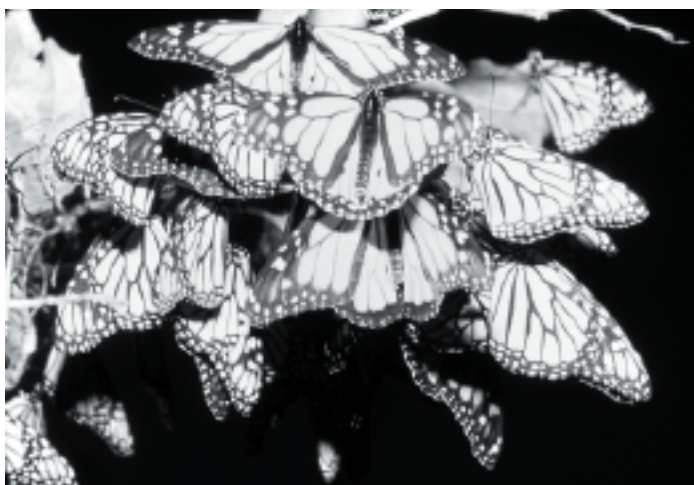
as winged stages of butterflies, and in 2003 at its Powder Mill Ledges Wildlife Refuge, Audubon staff began to look at structural issues in managing butterfly habitat.

In 2004, Audubon initiated the first North American Butterfly Association (NABA) count in Rhode Island, joining 47 of the lower 48 United States where counts occur. Only Nevada lacks a site in the NABA project, which has been in operation since 2001.

Table 1. Audubon Society of Rhode Island butterfly counts, July 10th, 2004.

	Site*											
Species	1	2	3	4	5	6	7	8	9	10	11	Total
Papilionidae												
Eastern Black Swallowtail	5		1	5			1		1	2		15
Tiger Swallowtail	1	1	1	5	1	3			1		9	22
Spicebush Swallowtail		3	1	2							8	14
Pieridae												
European Cabbage White		1				2	21		1		9	34
Common Sulphur				6			11				12	29
Orange Sulphur				1		1	3				16	21
Lycaenidae												
American Copper	1	3				3	1				8	16
Striped Hairstreak											1	1
Eastern Tailed Blue											3	3
Spring Azure											12	12
Nymphalidae												
Great Spangled Fritillary	4	9	1	2		2					9	27
Baltimore											1	1
Pearl Crescent											4	4
Comma											1	1
Mourning Cloak			2									2
American Painted Lady	3										2	5
Red Spotted Purple	1	2					1				2	6
Appalachian Brown		1									7	8
Northern Pearly Eye		1										1
Little Wood Satyr	8	11		2				2			31	54
Common Wood Nymph	1	4		11							21	37
Monarch					1							1
Nymphalidae sp.		1	3	1								5
Hesperiidae												
Silver Spotted Skipper	7			1			1				9	18
Least Skipper	2										6	8
European Skipper											4	4
Tawny-edged Skipper											1	1
Northern Broken Dash	7										3	10
Little Glassywing	13										3	16
Delaware Skipper	1										6	7
Mulberry Wing											13	13
Black Dash											18	18
Dun Skipper											1	1
Hesperiidae sp.		1										1
Total Individuals	54	38	9	36	2	11	39	2	3	2		416

* Site 1: Powder Mill Ledges Refuge, Smithfield. Observers: A. Bridgman, P. Capobianco, E. Marks, H. Willoughby
 Site 2: Fort Refuge, North Smithfield. Observers: C. Cryan, J. Gass, B. Whitmarsh
 Site 3: Mercer Outlook/Wolf Hill, Smithfield. Observer: K. Weber
 Site 4: Newman Farm, Smithfield/Glocester. Observers: K. Weber, B. Weber
 Site 5: Fields along Rtes. 12, 102, 6, Scituate. Observers: G. Howard, L. Howard, M. Howard, R. Howard, J. Perretta
 Site 6: Field between RI State Police & National Guard, Scituate. Observers: same as Site 5
 Site 7: Dame Farm/Snake Den State Park, Johnston. Observers: same as Site 5
 Site 8: Mowry Conservation Area, Smithfield. Observer: R. Burrows
 Site 9: Stillwater Trail, Smithfield. Observer: R. Burrows
 Site 10: Connor's Farm, Smithfield. Observer: R. Burrows
 Site 11: Blackstone Valley (Cumberland Monastery, Lonsdale Marsh, Waldron Corners). Observers: W. Bosse, H. Pavulaan



Monarch Butterflies. Photo: Irene H. Stuckey.

NABA's methodology for the July 2004 count required only the delineation of a 15-mile diameter circle, which Audubon centered at its Smithfield headquarters. This first survey area extended from Glocester and Scituate to the Cumberland side of the Blackstone, and included the metro area to Cranston. In keeping with the objectives of NABA and ASRI to encourage an interest in butterflies as well as to document species, the public was invited to participate. Orientation sessions, consisting of reviewing identifications and project protocols, were conducted the evening preceding the count. Five teams were fielded on July 10, 2004, from 10 AM to 2 AM. Harry Pavulaan traveled from Washington, D.C. to participate.

Eleven sites within the 15-mile circle were surveyed. A total of 32 species was recorded, and 416 individual butterflies were counted (Table 1). NABA will post these data on their web site (www.naba.org) in May. The most widespread species was Tiger Swallowtail (*Papilio glaucus*), which was recorded at 8 of 11 sites for a total of 22 individuals. Five species were seen in larger numbers, but a fewer sites, including 54 Little Wood Satyrs (*Megisto cymela*), 37 Common Wood Nymphs (*Cercyonis pegala*), 34 European Cabbage Whites (*Pieris rapae*), 29 Common Sulfurs (*Colias philodice*), and 27 Great Spangled Fritillaries (*Speyeria cybele*).

The largest number of species, 28, was documented by Harry Pavulaan and Walter Bosse in the Blackstone Valley. The value of experience is obvious—Harry and Walter counted 220 individuals, more than four times as many as the next highest team total. At Powder Mill Ledges in Smithfield, Hugh Willoughby, Peter Capobianco, Allen Bridgman, and Eugenia Marks recorded 13 species, thanks to the expertise of Peter Capobianco in identifying skippers. Jim Gass, Cathy Cryan, and Beth Whitmarsh sighted 12 species at Audubon's Fort Refuge in North Smithfield. Ken and Bettie Weber recorded 6 species at Wolf Hill and Newman Farm. Robert Burrows noted 5 species on Smithfield conservation lands, and Joyce Perretta and family recorded 6 in Johnston and

Scituate, including the only Monarch (*Danaus plexippus*) seen that day.

Audubon will host two counts on July 9, 2005—one again centered in Smithfield and a second using our Fisherville Brook refuge as host site. The second circle includes Audubon's Parker Woodland in the north, Hopkins Hollow in the west, Arcadia Management Area in the southwest, and Ladd School in the southeast. We call on experts and enthusiasts to mark your calendars now and to join these counts by registering an interest with emarks@asri.org.

As capacity allows, the survey will expand in future years. We look forward to working with RINHS and others interested in documenting and increasing awareness of the 93 species extant in Rhode Island.

Eugenia Marks is the Director for Issues & Publications at the Audubon Society of Rhode Island in Smithfield.

Notes from Field and Study: *Botanical Taxonomy Marches On*

B Y R I C H A R D E N S E R

"In the past 40 years, a host of zealous and highly intelligent workers...has discovered that the flora of the temperate eastern half of North America is full of absorbing and largely still unsolved problems; and the knowledge of our own region has vastly multiplied, all because the so-called 'closet-botanist' of the past has recently come out of his closet to the fields and woods and is more and more doing so." (Merritt Lyndon Fernald, in the Preface to the 8th edition of *Gray's Manual of Botany*, 1950)

One of the most important North American botanists of his or any time, M. L. Fernald was justifiably proud to be working in an era when botanical investigation began to flourish, especially in light of ideas that had preceded him. For example, in 1829 botanist Amos Eaton observed that, "there are not, probably, 50 undescribed species....in the United States—perhaps not one species east of the Mississippi." Fernald remarked about this statement, "if everyone had scrupulously hidden in his closet we might not now smile at Eaton's naivete." But Fernald would also be impressed to know that botany has continued to advance through the years, and with the advent of genetic analyses our understanding of botanical taxonomy has remarkably increased. This new knowledge has also fueled reevaluations of hierarchy and subsequent changes in nomenclature.

Questions about which names to use abound in all biological groups (remember the Baltimore or Northern Oriole dilemma), but in the field of botany it seems that names are always in a state of flux. Changes can be particularly frustrating for amateur botanists who strive to memorize complex scientific names only to find that newer manuals have been updated to reflect recent taxonomic changes, in some cases spawning a variety of unfamiliar names. A good example is the genus *Aster*, a diverse and well-known group that includes more than 24 taxa in Rhode Island. In case you haven't heard, *Aster* is now applicable primarily to Old World members of the group, and all native North American asters have now been divided among six "new" genera. For example, the well-known New England Aster is now known as *Symphotrichum novae-angliae*.



Taxonomic issues can be more problematic than just causing frustration among botanists. In 1999, a team of New England botanists published *Flora Conservanda: New England*, an assessment of the region's plants in need of conservation. This document identified over 576 plants, each assigned to one of four categories based on number of known populations. A separate division, called "Indeterminate," included 116 taxa that could not be assigned a conservation rank because of complex identification issues. The Indeterminate list was intended to identify those plants in need of research in order to clarify their true taxonomic uniqueness, and subsequently their status in the New England flora.

A recently completed effort to answer some of these questions is the Herbarium Recovery Project, a two-year survey of regional herbaria designed to investigate the status of the Indeterminates. The project was conducted by Arthur Haines, coauthor of the *Flora of Maine* and currently the main force of the new *Flora Novae-Angliae* Project (see below). During his survey of herbaria Arthur examined over 18,000 plant specimens. Of these, over 2200 (one in eight) specimens required annotation, either to rectify a misidentification or to update a new species or varietal name published since the specimen's original collection. Based on this reexamination of New England material, he was able to "discover" new state records of previously unreported plants, and also exclude species from one or more states when the voucher specimens proved to be misidentified.

New records for Rhode Island include a rare Dodder (*Cuscuta indecora* var. *neuropetala*), found on coastal-plain pond-shores, where it is parasitic on Narrow-leaved Goldenrod (*Euthamia tenuifolia*) and Pink Tickseed (*Coreopsis rosea*). Also, based on a new taxonomic treatment of the rye grasses (*Elymus*), two new species were documented for Rhode Island, *Elymus glabriflorus* and *E. macgregorii*. A 1942 specimen of a very rare quillwort hybrid (*Isoetes x eatonii*)

was confirmed from the town of Cumberland, a new species of violet (*Viola subsinuata*) was identified from a 1941 South Kingstown specimen, and a careful look at the confusing genus of sea blites (*Suaeda*) uncovered a new species (*S. calceoliformis*) for New England, including two records from Succotash salt marsh in Jerusalem.

These determinations have greatly improved our knowledge and assessment of species of concern, but Arthur's newest endeavor is even more exciting. *Flora Novae-Angliae* will be the most up-to-date treatment of New England's plants ever accomplished. Complete with identification keys, color images, and distribution maps, this web-based manual will be portable and will never go out-of-date because the newest taxonomy and nomenclature can be instantaneously updated. For a sneak preview visit: http://www.arthurhaines.com/flora_novae_angliae.htm.

Richard Enser is Coordinator of the RIDEM Natural Heritage Program and serves on the RINHS Board of Directors.

Ecological Inventory, Monitoring, and Stewardship Program: 2004 Odonata Atlas Summary

B Y V I R G I N I A B R O W N

The final year of the Rhode Island Odonata Atlas will forever be remembered as the year of the southern dragonflies. Two previously scarce king skimmers with southern distributions were found in large numbers during the summer of 2004, as they were in other parts of southern New England. Bar-winged Skimmers (*Libellula axilena*) and Great Blue Skimmers (*Libellula vibrans*) moved into our area in June. Prior to this year, there was only one record for each in Rhode Island. In 2004 however, Great Blue Skimmers were recorded in 13 townships at 13 different locations and Bar-winged Skimmers were recorded in 11 townships at 12 different locations. Reproductive behavior was observed in both species at numerous ponds; however, many of the vernal pools dried up after eggs were laid, so we wonder how successful these events will be. We certainly hope these species will become regular members of our fauna in future years.

Despite the abundance of the two southern king skimmers, Taper-tailed Darners (*Gomphaeschna antilope*), another

southern species, were scarce in 2004. Only a few animals were observed in two different locations. Coppery Emeralds (*Somatochlora georgiana*) were again observed in large numbers in South Kingstown, and new populations were found in Coventry and Burrillville in the higher elevations.

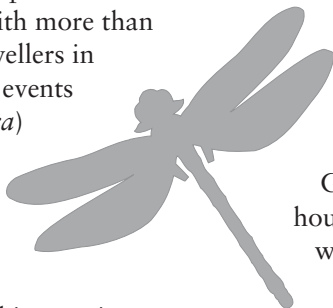
Spring inventory of Ringed Boghaunters (*Williamsonia lintneri*) produced two new sites for this early-flying, fen-dwelling dragonfly, one each in Woonsocket and Johnston, bringing the total number of breeding sites in Rhode Island to 29. What is most interesting about the two new wetlands is that both are in relatively urban environments with only small areas of forest cover remaining. The Johnston wetland is literally perched on the edge of the most developed area in the state. The second new Ringed Boghaunter site, in Woonsocket, also supports substantial populations of Spatterdock Darner (*Aeshna mutata*) and Comet Darner (*Anax longipes*), both new discoveries in 2004. These two stunning insects were on the wing at once, patrolling the patches of floating and emergent vegetation, making for a wild and colorful day in the field. In addition, this Woonsocket pond is one of the most diverse odonate sites in the state, with more than 50 species present, and many bog and fen dwellers in residence. Magnificent communal egg-laying events of Black-tipped Darners (*Aeshna tuberculifera*) were observed at this pond, with clusters of females hunkered down in the sedges and agitated males skulking about in search of mates.

Spatterdock Darners (*Aeshna mutata*) had a big year in Rhode Island, with six new sites recorded in seven townships (the Woonsocket pond described above straddles two townships), doubling the number of known locations for this species.

Surveys of river species produced intriguing results in 2004. Arrow Clubtails (*Stylurus spiniceps*) were found in a third location on the Blackstone River, in North Smithfield, only a few hundred yards from the Massachusetts line. The three sites encompass five miles of the river, but the species may not occur continuously over this distance. Downstream on the Blackstone in Lincoln and Cumberland, the largest population we have seen of this species occurs in the rapids below a dam on algae-covered rock and cobble substrate. Zebra Clubtails (*Stylurus scudderi*) were found in a second stream in Burrillville, bringing the total number of streams in Rhode Island to five. Several new populations of the beautiful American Rubyspot (*Hetaerina americana*) were documented in 2004 on urban stretches of two Rhode Island rivers (Warwick/West Warwick and Pawtucket) where little or no riparian buffer remains. Not only was the species present at these urban sites, but it was present in very large numbers and apparently thriving in less than pristine conditions.

Inventory for Brook Snaketails (*Ophiogomphus aspersus*) has yet to produce the species outside of two streams in the Pawcatuck Watershed. This species is proving to be extremely limited in occurrence in Rhode Island. Unlike other clubtails of clean forested streams, the Brook Snaketail has not been found in any additional streams or watersheds. The Pawcatuck Watershed is Rhode Island's healthiest watershed, with headwater streams flowing through thousands of acres of conservation land or intact forest. Additionally, due to their geologic history, the rivers and streams of the Pawcatuck Watershed have extensive clean sand deposits, which are preferred by larvae of Brook Snaketails.

Two new populations of the mighty Arrowhead Spiketail (*Cordulegaster obliqua*) were found in 2004, thereby doubling the number of known sites in the state. One of these populations appears to be quite large, as at least 10 individuals of both sexes were observed flying and perching in sunny slash areas in mixed pine-oak woodland.



On September 11, 2004, right after a cold front and tropical system passage, one of the largest dragonfly migrations we have seen took place along our south coastal beaches. Movements were observed in Little Compton and South Kingstown, where thousands of Common Green Darners (*Anax junius*) passed by in a few hours time. Also present in this spectacular migration were large numbers of Black Saddlebags (*Tramea lacerata*), smaller numbers of Carolina Saddlebags (*Tramea carolina*), and Wandering Gliders (*Pantala flavescens*), and a few Blue Dashers (*Pachydiplax longipennis*). Several other observers reported large numbers of *Anax junius* along the coast that day.

With the final field season of the Rhode Island Odonata Atlas complete, we are moving forward with data analysis and preparing our final publication, to be published by RINHS in partnership with The Nature Conservancy. Quality control of our database (now numbering over 14,000 records) was finished in the winter of 2003–2004, and approximately 1100 collecting sites were mapped on USGS quad maps. These sampling points were electronically mapped during the summer of 2004. We are also moving forward with the effort analysis from the Atlas, entering minutes/hours of observation (directly from volunteer and staff data sheets) for each collecting site into computer. This will allow us to analyze how much effort (e.g., field time) was spent not only at the township level but also at the site level. We expect to have the Rhode Island Odonata Atlas publication in press by fall 2005.

Virginia Brown is Coordinator of the RINHS Ecological Inventory, Monitoring, and Stewardship Program.

President's Message



A single acorn, gently lifted from a wooden keepsake box on my bureau. I am reminding myself of its look, its feel. Nearly weightless. Scaly cup long gone. Brown. Smooth. Oblong. Shiny. Worthless. Priceless.

I originally pilfered this seemingly insignificant one-seeded orb from the warm Georgia soil that supported a canopy of magnificent Live Oaks (*Quercus virginiana*) on a sunny day that held the promise of fond memories. I rubbed it, tossed it, and caught it time and again as I wandered under the sylvan green umbrella of Cumberland Island oaks, my mind elsewhere. What I did next surprised me; I stuffed the acorn into my pants pocket. Why? I had absolutely no idea at the time.

The most important reason for collecting this small piece of Georgia became clear to me soon after I returned from the South, but what became clear to me just this past week is that one of the reasons I collected my acorn is quite simply that I am a Col-

lector. This is no small revelation to one who sits on a Board of Collectors. No, not the Internal Revenue Service, but the Rhode Island Natural History Survey. Whether it is general members, Board members, or staff, our vocations and avocations often involve collecting. But rather than collecting stamps, coins, matchbooks, antiques, or hefty salaries, it is nature that we collect. Consider just a few of the Collectors on our Board of Directors. We have an ecologist who collects microorganisms, a geologist who collects rocks, and an entomologist who collects dust ... mites, that is.

Our Survey would likely never have been founded had it not been for Collectors and their Collections. In fact, it was the compilation and publication of a catalog of Collectors and Collections in 1993 that served as a major springboard for the formation of the Survey. This original three-ring-binder-bound Yellow Pages titled *A Natural History Directory for the State of Rhode Island—Preliminary Listing of the Organizations, Individuals, and Publications Pertaining to Rhode Island's Natural History* eased the task of finding where collections of fish were housed, who worked on Rhode Island plants and fungi, and what collections contained bird skins. Before the appearance of the Directory, I had no idea that the Nature Laboratory at the Rhode Island School of Design was a repository for biological and geological specimens numbering in the tens of thousands.

The original Directory was supplanted in 1995 by a more sleekly bound expansion of its predecessor, and while both still point the way to invaluable contact information, the passage of time has eroded some of their utility. The relative scarcity of e-mail and web site addresses is a sure sign of that erosion. Besides, the speed with which the information highway has enveloped our lives has convinced us of the need for an electronic Directory. Therefore, its newest iteration replaces paper and ink with links to find lynx, and mice to find mice.

The Survey is pleased to invite you to visit the new no-carb, totally green, better-than-ever Natural History Directory at <http://www.rinhs.org>. Click on "Enter here" at the bottom of the Directory announcement and you're in. One thing you will soon notice is many categorical choices, but few listings of Collectors and Collections. That is because Directory coordinators Alex Frost and Erik Endrulat, and all of us who will eventually reside in these virtual pages, are building this compendium from the ground up. We are the contributors. We are the authors. We are the ones who will make the entries, thus providing the ultimate in accuracy and flexibility. Logging on, entering our information, and updating it periodically will help make version III of the Directory the most useful yet.

Back to the scene of my acorn larceny. The occasion was the memorial service for one of our RINHS Distinguished Naturalists, Dr. C. Robert Shoop. I realize now that the deep-seated reason for tucking away that little nugget was to remind me of my former friend and colleague. Funny thing is, that realization never crossed my mind when I tucked the oak-in-waiting into my pocket. Even more ironic is the fact that earlier in the year of his death, Bob and I had discussed the possibility of working together on the ecology of ... Live Oak.

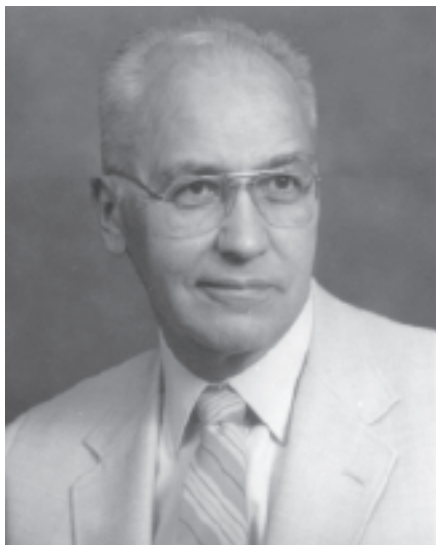
Consciously, I was temporarily blind to these priceless connections. Unconsciously, they were as clear as a sunny day in Georgia. At times like this I am truly thankful for my Collector genes.

Keith

Roger D. Goos RINHS Distinguished Naturalist, 2005

BY KEITH KILLINGBECK

“Mushrooms Grow On Him.” That was the title of an article published in the *South County Independent* on 20 November 1997 describing Roger D. Goos, Professor Emeritus at the University of Rhode Island. Although the title was probably more fitting for a low-budget Sci-Fi movie involving pesky *Amanitas*



Roger D. Goos

with a propensity for human colonization, changing the verb to the past tense transforms the title into the story of Roger’s academic life: “Mushrooms Grew On Him.” This gentle man of international stature has been engrossed in the study of fungi for more than half a century.

But alas, the title is still flawed. Roger’s colleagues would be the first to note that it is not only the mushrooms of the fungal world that have captured his attention. Basidiomycetes alone do not a mycologist make. Certainly it is these sometimes edible, sometimes showy fungi that have attracted the legions of Basidiomycete-hunters to Roger’s many “mushroom walks,” but fungi of virtually every ilk have been the topic of Roger’s research.

A native of Iowa, Roger completed his undergraduate and graduate work at his state’s namesake university and then took the “scenic route” to Rhode Island. That route took him to positions with the United Fruit Company, the National Institutes of Health, the American Type Culture Collection, and the University of Hawaii. Soon after the 12-year trek that brought him to Rhode Island in 1970, Roger assumed a leadership role at the University as Chair of the Department of Botany, a position he held for 15 years.

While Rhode Island has been his home base for the past 35 years, Roger has pursued research and held honorary

appointments at universities in British Columbia (1977), Hawaii (1977), India (1981), and the United Kingdom (1984). He was also a Visiting Research Associate at the Bishop Museum in Honolulu, Hawaii (1990), and a Fulbright Fellow at the University of Lisbon in Portugal (1993). His encyclopedic knowledge of fungi has earned him invitations from around the globe to enter into collaborative research efforts. Pursuing research with colleagues from locations as distant from one another in culture and geography as India, Japan, and Iraq gave Roger a perspective on fungi, and life, that he was able to share with others closer to home. Being elected president of the Mycological Society of America in 1986, and being awarded the New England Wild Flower Society Rhode Island State Award in 1997, are further testimony to the respect and admiration he has earned for his devotion and contributions to the field of mycology.

Teaching and research were complementary passions that Roger pursued with his patented low-key zeal. While “low-key” and “zeal” are terms not often used in combination, together they aptly describe a seemingly covert enthusiasm that emerged whenever Roger talked about the biological love of his life, fungi. As those who were lucky enough to take one of his formal classes, or one of his informal walks will tell you, his enthusiasm for fungi was anything but cryptic.

Roger penned more than 130 research publications during his illustrious career, all of which were devoted to a group of understudied organisms that in some ways are the taxonomic equivalent of the proverbial “black sheep.” Plants? No. Animals? No. Something in between? Must be. But when all is said and done, perhaps the most important written contribution that Roger will make to the field of Rhode Island natural history is one that has yet to be published. Waiting in the wings is Roger’s most recent achievement—Volume 4 of the RINHS Biota of Rhode Island series, *The Mycota of Rhode Island*. To say that this landmark publication will provide a quantum leap in our knowledge of the fungi of Rhode Island is surely an understatement.

Roger Goos has contributed to our understanding of the natural history of Rhode Island in innumerable ways, but sometimes what is often lost in the lists of accomplishments is the way in which those contributions were made, the way in which those achievements were earned. In his own inimitable way, Roger has always been both a gentle man, and a gentleman. He always made time for the student with a question, the colleague needing a favor, or the stumped fungalophile holding an as-yet-to-be-identified mushroom. Just as in Olympic skating and diving, style counts, and Roger’s accomplishments were carried out with a style laced with class and poise. With all the scorecards reading 10.0, it is clear why Roger D. Goos is the recipient of the 2005 RINHS Distinguished Naturalist Award.

The Rest of the Story

One of Roger Goos' most under-appreciated papers, except by those who have heard "the rest of the story," was published in 1980 with Bob Shoop, a posthumous Distinguished Naturalist Award winner last year. The paper reported the second known case of poisoning due to *Tricholomopsis platyphylla*, a relatively common mushroom that is often listed as edible in field guides. The Rhode Island poisoning was serious, but thankfully non-fatal. The unfortunate experimental subject/patient recovered after a very unpleasant couple of days in South County Hospital—all detailed exquisitely in the paper. What was not mentioned was that she happened to have been Bob's wife.

Goos, R.D., and C.R. Shoop. 1980. A case of mushroom poisoning caused by *Tricholomopsis platyphylla*. *Mycologia* 72(2):433–435.

Keith Killingbeck is Professor of Biological Sciences at the University of Rhode Island and President of the RINHS Board of Directors.

Elmer A. Palmatier (1912 – 1995), RINHS Distinguished Naturalist, 2005 (Posthumous Award)

B Y K E I T H K I L L I N G B E C K

A tour-de-force in the teaching profession, Elmer A. Palmatier engaged more than 12,000 students in the fine art of thinking during the 40 years he spent in the Department of Botany at the University of Rhode Island. A hallmark of his teaching strategy was the devious ways in which he inspired and coerced his students to think. This, in itself, gave great pleasure to both teacher and student. Recognition of his teaching prowess was formalized in 1974 when Elmer was the recipient of the prestigious URI Award for Distinguished Teaching. On that Award are included these words: "[Students] are swept along by his enthusiasm for and wide scholarly knowledge of his subject matter. Even with a large General Botany class, he is able to generate a sense of excitement ... He is perhaps most at

home at the front of a long line of students wending its way toward the Great Swamp, the dunes, or through the woods and salt marshes."

At home, indeed. Elmer loved to be in the field, and loved to be in the presence of students. When both loves converged, Elmer was at his best. "Students," to Elmer, did not necessarily mean larval botanists formally enrolled in a class. It meant students of life. It meant students for life. Whether it was General Botany or Field Botany or Saturday Morning Serendipity Botany, Elmer used to revel in prodding and probing. He trolled for thoughts, ideas, inconsistencies, ironies, enigmas, all of which were fodder for A Lesson. The lesson was often about botany, but it was almost as likely to be about some more cosmic, philosophical aspect of our lives on this planet. In a scratched-out list of his favorite quotes I found this, attributed to Timothy Ferris: "It is flattering to know that our ignorance is infinite—it gives us a sense of spaciousness." Pure Palmatier.

Elmer was born in Tacoma, Washington, but his botanical roots were sunk deeply into the prairies of the Midwest. Ord, Nebraska was home—a tiny town in the middle of North America's sea of grass. Formal training in botany began at the University of Nebraska, where in 1935 Elmer earned a Master of Science degree. Ithaca, New York, was the next stop on his road to Rhode Island. At Cornell University, Elmer earned his Ph.D. under the guidance of Dr. Arthur J. Eames and a host of other eminent botanists. Plant taxonomy and morphology were the topics that excited him most and were ultimately the focus of his life's work.

Curiosity and originality were traits that Elmer honed to a razor-sharp edge. Curiosity led him to virtually every ecological community-type and geographical location on this planet, from Bora Bora to Katmandu. In a way, that same curiosity led him to professional appointments at the University of Miami (1956), the University of Baghdad in Iraq (1961–62), the National Science Foundation in Washington D.C. (1965–66), and Duke University (1970). As far as originality, how many professors have you seen race an undergraduate down a dusty road ... during class ... after an already strenuous hike to Ell Pond ... when said professor was 69 years old? He lost the race, but he won the hearts of the class. While it is a truism that everyone is one-of-a-kind, Elmer was about three-of-a-kind.



Elmer A. Palmatier (1912–1995)

Of all Elmer's publications, *The Flora of Rhode Island*, published in 1952, was not only his best known work, but was for many years the final word on the presence or absence of plant species in the state. Although more

recent treatments of the Rhode Island flora have supplanted the 1952 *Flora* as the collective authority on the this state's higher plants, botanists region-wide still seek out information contained in the well-worn copies of "Palmatier '52" that rest in places of honor on our shelves.

As I was driving to Elmer's memorial service on a melancholy day in Kingston in the winter of 1995, I passed a car driven by none other than Santa himself. I knew it was the real Santa because he was at the controls of an old Dodge Dart. Only Santa would have the mystical charisma necessary to drive an antiquated Dart in 1995. Immediately, the similarities struck me. Hearty laugh. Twinkle in his eye. Elmer. I don't know if my friend and colleague of many years ever donned a Santa suit, but I do know that he gave me, and I am sure, many of you, priceless gifts that will never be forgotten.

Few peers could equal Elmer Palmatier in the knowledge he had of the Rhode Island flora, and perhaps even fewer still had the enthusiasm and energy required to so successfully promote the excitement and importance of botany. He often counseled students that "there is no monotony in studying one's botany," a proverb he crafted into a beacon for his own personal life—there is no monotony, period. Well known as an inspiring teacher and consummate natural historian, Elmer will now also be fondly remembered as a RINHS Distinguished Naturalist.

Keith Killingbeck is Professor of Biological Sciences at the University of Rhode Island and President of the RINHS Board of Directors.

RINHS Conference Examines Rhode Island's Forests

B Y T O D D M C L E I S H

The tenth annual Rhode Island Natural History Survey conference on March 4th featured a full day of activities centered on the theme of "Rhode Island's Forests." Held at Rhodes-on-the-Pawtuxet in Cranston, the event attracted nearly 200 attendees and received excellent coverage in the *Providence Journal*.

The conference began with the official unveiling by Providence Postmaster Michael Kocak of the U.S. Postal Service's new stamp sheet illustrating eastern deciduous forests. The stamp sheet, which went on sale nationwide the day of the conference, is the seventh in a series highlighting the varied habitats found in the U.S. A poster-sized enlargement of the

stamp sheet was presented to RINHS Executive Director David Gregg.

The annual Distinguished Naturalist Awards were presented to two former URI botany professors who made major contributions to natural history research and education in the state. Professor Emeritus Roger D. Goos was honored as an internationally known mycologist and author of more than 130 research publications. The late Professor Elmer A. Palmatier was honored posthumously as a much-loved teacher and authority on the presence or absence of plant species in Rhode Island.

Keynote speaker Louis Iverson of the U.S. Forest Service spoke about the models being used and the predictions made about the impact of climate change on eastern U.S. forests. A former student and long-time friend of RINHS President Keith Killingbeck, Iverson is the author of *The Atlas of Current and Potential Future Distribution of Common Tree Species in the Eastern United States*. In his presentation he outlined the predicted changes in range and distribution of trees that may result from increased global temperatures. As habitat changes occur across the country, southern species are expected to move northward, while others will move to higher elevations where possible. Iverson said that of Rhode Island's 40 tree species, 12 to 15 of them—including Black Ash, Quaking Aspen, and Bigtoothed Aspen—may disappear from the state over the next 100 years due to global warming, but 23 species from the southern U.S. may colonize parts of the region, including Southern Red Oak, Sweet Gum, Virginia Pine, and Shortleaf Pine. When these new species arrive, it is uncertain what dynamic will result when existing species meet and compete with new arrivals for the first time.

The keynote address was followed by 10 shorter presentations discussing such subjects as invasive plants, forest fragmentation, managing forests with fire, vertebrate use of forests, and conservation through stewardship. In addition, 16 posters and 11 organizational displays were exhibited for attendees to view and discuss. Conference participants also enjoyed viewing *Forests and People: Partners through Time*, a photographic exhibit by Salvatore Mancini, presented by the Southern New England Forest Consortium.

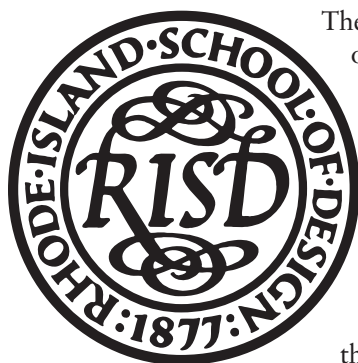
The conference was funded in part by generous support from the Rhode Island office of The Nature Conservancy, the Natural Resource Conservation Service, the Rhode Island Rural Development Council, and an anonymous donor.

For abstracts of the oral and poster presentations, visit the RINHS website at www.rinhs.org.

Todd McLeish is with the URI Communications & News Bureau and serves on the RINHS Board of Directors.

Focus on RINHS Organizational Members and Rhode Island Collections: The Edna Lawrence Nature Lab, Rhode Island School of Design

B Y K A R E N I D O I N E



The Nature Lab at RISD grew out of Edna Lawrence's conviction that the marvels of beauty in nature's forms, colors, textures, patterns, and structures would inspire and inform artists and designers. Ms. Lawrence, an alumna and noted regional artist during the mid-20th century, taught a course called Nature Drawing for

forty years in the lofty, elegant space that she transformed from her classroom into the Nature Lab. She assembled the natural history collection from her own gathering trips up and down the east coast, and from donations. Since her retirement in 1979, the collection has continued to grow and thrive as a cherished hands-on treasure at RISD.

The roots of this collection reach back into the 19th century, when the passion for natural history that engaged families, amateur natural historians, and budding scientists was running high. It is housed in four rooms on two floors of the Waterman Building, which was the first building expressly designed and built for the Rhode Island School of Design in 1893. Many who visit the Nature Lab remark on its "cabinet of wonder" quality. You can walk in, wander from cabinet to cabinet, open the doors, take out a starfish, a sea-horse, a tarantula, a Scarlet Tanager, or pressed plants and seaweed; select from hundreds of colorful insects; or study the glossy fur of a recently mounted Mink.

Perhaps the words of a student give the ultimate perspective on this collection. Kate Wall, in her senior year at RISD in 2001, wrote this:

"As I approached the building, I noticed splashes of greenery flooding the view through its windows. There was a certain built-in mystery about what exactly this building's walls contained and I was immediately intrigued. I could make out the faint

shapes of birdcages and other similar items inside. Amidst the matching College Hill architecture and 10 seconds away from the horns and engines of downtown Providence traffic, I stood for only a moment before I proceeded up the stone steps of the Waterman building. Walking through the front foyer of the building, I heard student activity and these sounds led me to what I would come to know as the Nature Lab.

I remember as a child, there was a place in southern Vermont I would visit. It was one of those places that you had to drive miles just to get close enough to even begin the long trek through the forest, then to a farm and makeshift nature museum. At a very young age, I was first introduced to the shape and feel of an owl's body and the different tracks that animals left in the local trails. There was something oddly safe about being able to get so close to objects that I had perhaps only experienced in books and thick glass cases in the museums of New York. A barrier was broken and learning about the local nature of the forests that surrounded me became a hands-on experience for me. It was an experience that ultimately could not have been paralleled by any class or museum tour.

The second and only other time I have ever experienced a place of similar atmosphere was the time I first walked into the Edna Lawrence Nature Lab at Rhode Island School of Design. Years later, I still experienced that feeling of childhood wonder and awe. What amazed me was the vitality of student activity taking place in and around the lush, rich environment. The environment seemed alive and open to exploration. Students, hands black with charcoal, sketched animal skeletons right next to others feeding and interacting with birds. Although the environment was neat and obviously well cared for, there was an element of an amateur quality to the Nature Lab. It was as if someone had gone out and collected the seedpods that were now housed in one of the glass shelves and had carefully built the encasement that now housed it. I found this incredibly intriguing and different."

By our estimate, 80,000 objects make up the collection. We have been working, slowly, to build databases of our special collections and are about to embark on cataloging the entire collection of specimens. We tread a fine line between our hands-on mission, which allows students to borrow many of the items, and efforts to conserve. We have been attempting to include scientifically relevant information with new acquisitions so that the collection can grow to be useful to scientists as well as to artists and designers. Currently, most of the

specimens have no collection data associated with them.

The Nature Lab staff includes a full-time curator, a curatorial assistant, and about 25 part-time student employees. We assist faculty, students, and alumni with projects, as well as work to maintain and display the collection. To serve the students, faculty, and alumni of RISD comprises the Lab's primary mission, but we welcome visitors. For all but a casual visit by two or three people, it's a good idea to call ahead.

Collections and resources:



Figure 1. Late 19th century glass-fronted cabinets house much of the Nature Lab's collection. (Photo by Ira Garber)

These include shells, bones, insects, fish, birds, mammals, reptiles, seed pods, pressed leaves, wood, feathers, x-ray photos, Edna Lawrence's student nature drawings, a picture collection, 35mm slides, a reference library, dissection and compound microscopes, an archive of slide mounts, and a computer workstation. Using the digital resources of the Lab, one can capture both macro and micro images of specimens. Limited-ac-

cess collections include minerals, a beautiful old herbarium, skeletons, bones, birds, and animal pelts in storage, all of which may be viewed by appointment.

Nature lab inhabitants:

A small collection of live animals including birds, lizards, gerbils, turtles, fish, amphibians, insects, and plants call the Nature Lab home.

For more detailed information please contact the Nature Lab at (401) 454-6451, or e-mail nature@risd.edu.

Karen Idoine is an entomologist, ecologist, and educator, and Curator of the Edna Lawrence Nature Lab. During her tenure, she has worked with faculty to develop programs and courses that examine relationships among science, art, design, and nature.

RINHS News

Jackie Sones, who served as the Survey's Conservation Biologist in the Ecological Inventory, Monitoring, and Stewardship Program for two years, left the Survey in December and relocated, with her husband Eric, to Bodega Bay, California. Eric is an Assistant Professor of Ecology and Evolution at the University of California at Davis, based at the Bodega Marine Laboratory.

Jackie is also working for UC Davis as a Reserve Steward at the Bodega Marine Reserve. Her new responsibilities include providing research and teaching support, assisting with long-term monitoring projects, maintaining trails, and land management (especially controlling invasive species). Not one to remain idle, Jackie is currently participating in a GIS certificate program and will collaborate with other lab staff to create a GIS program for the reserve. She is enjoying the process of learning the local flora, fauna, and weather patterns!

Jackie's keen naturalist's eye, skilled net, and contagious enthusiasm are sorely missed by all in the RINHS staff. We wish her well in California.

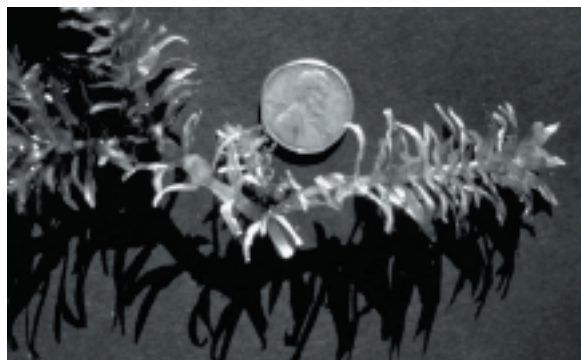
Please welcome Kristen Puryear to RINHS

We are pleased to have Kristen Puryear join the RINHS staff as a Conservation Biologist for this summer and fall. Kristen comes with a Master of Science degree from the Field Naturalist program at the University of Vermont and a wealth of experience in bird conservation, invasive plant management, and habitat assessment, mapping, and restoration. She's also been an environmental educator and interpreter. She has trained or worked throughout New England, as well as in California, Wisconsin, and Ecuador. We will put Kristen to the test by throwing her into diverse projects, including work with four land trusts, four Federal agencies, and a host of other projects, including BioBlitz.



The Invasives Beat: What's here and where is it?

B Y L I S A L . G O U L D



Hydrilla verticillata. Photo: Raghavan Charudattan, University of Florida, courtesy of www.invasives.org.

Invasive species are a major concern to ecologists and are considered one of the two greatest threats to biological diversity around the globe (the other being habitat loss/destruction). Rhode Island is certainly “blessed” with many non-native species of fungi, animals, and plants, and a number of them can be categorized as invasive and having significant impacts on our native biota and ecosystems. Because of the importance of this topic—which has ramifications on the world’s economies and human health, in addition to the health of “wild” ecosystems—we have added a new column to *Rhode Island Naturalist*, to highlight issues of invasive species and their impact in Rhode Island. This article is the first in the new series, “The Invasives Beat.”

Many of you are aware of the Invasive Plant Atlas of New England (IPANE) project, now entering its fourth year of field collection. Directed by Les Mehrhoff at the University of Connecticut, IPANE is a volunteer-centered program to collect data on the variety and extent of invasive plant presence in the region; it is also an effort to catch new invasives before they get a stronghold in the area. Early detection and rapid response are major components of IPANE; Les’s motto is *NO NEW INVASIONS!* For more information about IPANE, visit: www.ipane.org. To date, over 450 volunteers have been trained and are gathering data from USGS quads throughout New England; as of 2004, more than 6000 individual species observations had been recorded, about 675 of them in Rhode Island (Table 1).

As you can see, Asiatic Bittersweet and Multiflora Rose account for 36% of the Rhode Island observations, hardly a surprise to anyone who ever gets outdoors in the state. But what *is* surprising are the plants that are missing from this

list, including: Goutweed (*Aegopodium podagraria*), Garlic Mustard (*Alliaria petiolata*), Wild Garlic (*Allium vineale*), Porcelainberry (*Ampelopsis brevipedunculata*), Fanwort (*Cabomba caroliniana*), Japanese Sedge (*Carex kobomugi*), Purple Loosestrife (*Lythrum salicaria*), Eulalia (*Miscanthus sinensis*), White Mulberry (*Morus alba*), Giant Knotweed (*Polygonum sachalinense*), and Lesser Celandine (*Ranunculus ficaria*), all of which are known to have established populations in the state.

Also of interest is the distribution of IPANE records in the state. A whopping 47% are from Washington County, followed by Newport Co. with 32%, Kent Co. with 15%, Providence Co. with 4.5%, and Bristol Co. with 1.5%. Look at the existing data in terms of density distribution (number of records per square mile), and poor Newport County wins the prize as the most highly invaded landscape in the state (and possibly in New England!).

Table 1. Invasive plants found by IPANE volunteers, 2002–2004, ranked in order of the percentage of total Rhode Island IPANE field records to date.

Asiatic Bittersweet (<i>Celastrus orbiculatus</i>)	21%
Multiflora Rose (<i>Rosa multiflora</i>)	15%
Autumn Olive (<i>Elaeagnus umbellata</i>)	8%
Japanese Barberry (<i>Berberis thunbergii</i>)	8%
Japanese Honeysuckle (<i>Lonicera japonica</i>)	7%
Morrow Honeysuckle (<i>Lonicera morrowii</i>) + hybrids	7%
Swallow-worts (<i>Cynanchum</i> spp.) (= <i>Vincetoxicum</i>)	6%
Common Reed (<i>Phragmites australis</i> ssp. <i>australis</i>)	5%
Japanese Knotweed (<i>Polygonum cuspidatum</i>) (= <i>Fallopia japonica</i>)	3%
Sheep Sorrel (<i>Rumex acetosella</i>)	3%
Beach Rose (<i>Rosa rugosa</i>)	3%
Black Locust (<i>Robinia pseudoacacia</i>)	2%
Glossy Buckthorn (<i>Frangula alnus</i>) (= <i>Rhamnus frangula</i>)	2%
Wineberry (<i>Rubus phoenicolasius</i>)	1%
Norway Maple (<i>Acer platanoides</i>)	1%
Ailanthus (<i>Ailanthus altissima</i>)	1%
Common Barberry (<i>Berberis vulgaris</i>)	1%
Burning Bush (<i>Euonymus alatus</i>)	1%
Sycamore Maple (<i>Acer pseudoplatanus</i>)	<1%
Drooping Bromegrass (<i>Bromus tectorum</i>)	<1%
Common Buckthorn (<i>Rhamnus cathartica</i>)	<1%
Jimsonweed (<i>Datura stramonium</i>)	<1%
Privet (<i>Ligustrum</i> spp.)	<1%
Cypress Spurge (<i>Euphorbia cyparissias</i>)	<1%
Yellow Horn-poppy (<i>Glaucium flavum</i>)	<1%
Creeping Buttercup (<i>Ranunculus repens</i>)	<1%
Knapweed (<i>Centaurea</i> spp.)	<1%
European Bittersweet (<i>Solanum dulcamara</i>)	<1%
Scotch Broom (<i>Cytisus scoparius</i>)	<1%
Celandine (<i>Chelidonium majus</i>)	<1%

What the raw data don't tell us, however, are which quads and/or habitats have been surveyed and to what degree of effort. Once that information is taken into account, it becomes obvious that more work is needed: few quads in the northern half of the state (Providence Co.) have been surveyed by IPANE volunteers. Similarly, aquatic and wetland habitats have been neglected. We are hoping that 2005 IPANE surveying will help fill in these gaps and give us a clearer picture of the kinds of invasive plants in the state and their distribution.

The Early Detection component of the IPANE project is also crucial. Several species are known to be on our doorsteps, including Tall Pepperweed (*Lepidium latifolium*), an invader of the upper edges of salt marshes; Japanese Stiltgrass (*Microstegium vimineum*), a potentially serious invader in woodlands; and Hydrilla (*Hydrilla verticillata*), a very difficult-to-eradicate aquatic invader. With vigilance, we might be able to stop some of these species before they get a strong foothold in the state.

You don't need to be an IPANE volunteer to help. If you see an invasive that needs reporting, bring a specimen to the RINHS office or send us a photograph or digital image (to lgould@rinhs.org). Be sure to include exactly where you collected it: latitude/longitude coordinates are especially helpful, but a dot on a map and directions to the site will also do. If you need mental "search images" of unfamiliar invasives, visit www.invasive.org, an excellent web resource for images of invasive plants, animals, and diseases. The RINHS office also has files on many species, including information on identification, ecological impacts, and management. You are welcome to stop by for a visit—even better, get out in the field and provide another set of eyes to protect Rhode Island.

Lisa Gould is a senior scientist at the Rhode Island Natural History Survey, a research associate in URI's Department of Natural Resources Science, and an IPANE volunteer.

Rhode Island Natural History Survey Advisory Board, 2004–2005

Members of the Board of Directors are indicated with an asterisk (*)

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RINHS Phone and Address Update

The administrative and lab staff of the Survey has moved to Room 301 in Ranger Hall, a beautifully sunny space that many of you may recognize as the former lab of URI Professor Emerita Marilyn Harlin. Lisa Gould and Erik Endrulat have stayed behind to hold down the fort in the Coastal Institute office.

Please note we are now using a post office box to expedite mail delivery time. The new address is: RINHS, P.O. Box 1858, Kingston, RI 02881. Mail sent to the "old address" at 101 CIK, 1 Greenhouse Road will still get to us.

Additionally, to go along with these changes, we have a few new phone numbers:

(401) 874-5800 Main office number: David Gregg, Kira Stillwell, and all general Survey business

(401) 874-5817 EIMS lab

(401) 874-5868 301 Ranger Hall fax
(main RINHS office & EIMS lab)

(401) 874-5822 101 CIK: Eric Endrulat & Lisa Gould

(401) 874-4561 101 CIK fax (this is the fax # for the Department of Natural Resources Science, so please direct faxes to the attention of Erik, Lisa, or RINHS).

Weaving the Web: Electronic Resources

Taxonomy of Lepidoptera: Volumes 1 through 3 (1998–2002) of *The Taxonomic Report of the International Lepidoptera Survey* are now available as a free on-line resource. The available papers include descriptions of several new lepidopteran species and subspecies. The articles in Volumes 4–6 are presently available only as the first page, with the abstract. Navigate to "The Taxonomic Report," select a volume, then select an issue number to download the PDF version of the paper (you will need the Adobe Acrobat Reader to open the file). Those interested in obtaining a copy of the paper by Harry Pavulaan and David Wright describing the

Appalachian Tiger Swallowtail (*Pterourus appalachien-sis*) can now download it here (volume 3, number 7).
<http://www.tils-ttr.org>

Gardening in Rhode Island: In December, the University of Rhode Island Master Gardeners launched the first web-site dedicated entirely to providing information about gardening in Rhode Island. Among the highlights of the website are: a monthly feature story about an interesting plant or timely gardening activity; gardening tips and information about plants, pest insects and invasive plants; a section dedicated to the favorite plants of Master Gardeners; a calendar of community activities related to gardening; and a page of links to other reliable gardening websites, including the Rhode Island Wild Plant Society, the Rhode Island Rose Society, and the URI Cooperative Extension. Visitors to the site can also submit gardening questions that will be quickly answered by a URI Master Gardener, and they can learn about the Master Gardener Association and how to become a URI Master Gardener. In addition, the site will have a password-protected section for members of the Master Gardener Association, which will include a directory of members, a listing of volunteer gardening opportunities, and a bulletin board.
<http://www.urimga.org>

The National Sea Grant Library (NSGL), located on the URI Narragansett Bay Campus, has served for more than three decades as the archive and lending library for Sea Grant-funded publications produced by the 30 National Sea Grant College programs. The library is unique in that it houses the only complete collection of Sea Grant work, which includes 32,000 titles of books, journal reprints, conference proceedings, advisory and technical reports, handbooks, maps, and other information not readily available through conventional resources. Subjects include oceanography, marine education, aquaculture, fisheries, limnology, coastal zone management, marine recreation, and marine law—to name but a few. Publications are accessible through a web-searchable database, with many available as full-text PDF files. The database also contains citations, abstracts, and other bibliographic information. NSGL also lends documents to scientists, educators, fishers, and many others both for research and general use. <http://nsgl.gso.uri.edu>

The Library of American Landscape History (LALH) is a non-profit organization, located in Amherst, Massachusetts, that publishes books and produces touring exhibitions about North American landscape history. Their objective is public education, thereby encouraging good stewardship. Their website includes information about LALH, their available resources, and membership; a newsletter that can be downloaded; and links to other on-line resources. <http://www.lalh.org>

Natural History Opportunities for Volunteers and Students

The Audubon Society of Rhode Island is looking for individuals or teams of volunteers to help with two butterfly counts on July 9, 2005. One count will work out of Audubon headquarters in Smithfield, and one from the Fisherville Brook refuge in Exeter. See the article about last year's count (p. 8) to find out what it's all about. To express an interest, or for more information, contact Eugenia Marks at (401) 949-5454 or emarks@asri.org.

The Elmwood Foundation is looking for a student or an intern to work with youth at three of their gardens located in South Providence as a Garden Club Coordinator. The program will run for 12–13 weeks, from May 23rd until about the second week of August. They are looking for someone who has previous gardening experience and who enjoys working with youth from diverse backgrounds. The position pays \$2,200 for the summer. To apply, mail or email a resume and cover letter to: Ana M. Rodriguez, Elmwood Foundation, 693 Broad Street, Providence, RI 02907; arodriguez@elmwoodfoundation.org.

YMCA Camp Fuller, in Wakefield, Rhode Island, is seeking a qualified person for the dual position of Camp Counselor and Assistant Instructor for the Camp's Sea Quest Marine Studies Program. As Camp Counselor, this person will directly supervise and be responsible for the children in their cabin. As Assistant Instructor, this person will assist in teaching youth and adults at the Camp. Knowledge of marine biology is required, and some boat-handling experience would be very helpful. This person will work with the two other marine instructors, both of whom have extensive experience in oceanography education. The job begins June 18th and runs through August 27th. Salary will be commensurate with experience. A full position description is available on request. To apply, mail or e-mail a resume and cover letter to: Prentice K. Stout, YMCA Camp Fuller, 619 Camp Fuller Road, Wakefield, RI 02879; chrisrazz@hotmail.com.

Block Island Landscape, The Nature Conservancy, Block Island, Rhode Island, is looking for a short-term Science and Education Assistant. The Science and Education Assistant is responsible for assisting the Director of the Block Island Landscape in: recruitment, orientation, and training of volunteers; staffing the visitors' center; performing office duties; developing interpretive displays and materials; leading nature walks and tours to edu-

cate the public about local natural history, conservation heritage, and The Nature Conservancy's mission on Block Island; conducting weekly summer-camp activities focused on Block Island's natural history; assisting the Associate Director with biological monitoring and other scientific activities on Nature Conservancy preserves; cleaning and maintaining Nature Conservancy facilities; and other duties as assigned. Qualifications include: proven ability to deal with the public in a friendly, outgoing, and professional manner; proven leadership abilities; proven ability to work well independently and with others; excellent oral and written communication skills; degree, active study, or demonstrated knowledge of natural sciences, especially ornithology and/or botany skills; knowledge of Block Island community preferred; previous work experience with an environmental organization strongly preferred. The Science and Education Assistant is directly supervised by the Director. This is a 15-week paid position beginning on/about May 23, 2005. Housing is not provided. To apply, contact Scott Comings, Director-Block Island Landscape, The Nature Conservancy, P.O. Box 1287, Block Island, RI 02807; (401) 466-2129; scomings@tnc.org.



Benefits of membership in the Rhode Island Natural History Survey

For Individual, Family, and Student Members

Rhode Island Naturalist, the newsletter
Participation in the RINHS List-Serve
10% discount on all publications
Discount on annual conference fee
20% discount on subscription to the journal *Northeastern Naturalist*

For Organizational Members

Rhode Island Naturalist, the newsletter
Participation in the RINHS List-Serve
Listing in Annual Conference Program
10% discount on all publications
1 free registration at annual conference
20% discount on subscription to the journal *Northeastern Naturalist*

Events Calendar

May–June. The Rhode Island Wild Plant Society provides opportunities through field trips, walks, workshops, courses, and lectures to learn about native plants and their habitats while enjoying the outdoors. The full calendar with all the details can be found at <http://www.riwps.org>. Pre-registration is necessary for most RIWPS events. For information, or to register, please contact the RIWPS office at (401) 453-3777 or office@riwps.org.

- **Wildflower ID Class:** Marion Eppley Preserve, West Kingston, RI. Saturday, May 21st, 10:00 AM–noon. Fee: \$3 members; \$5 non-members.
- **Spring Plant Sale-Kingston:** URI Campus, Flagg Road, Kingston, RI. Saturday, June 4th, 8:00–9:00 AM (RIWPS members only), 9:00 AM–noon (open to the public), 10:30 AM (silent auction).
- **Spring Plant Sale-North:** Borrelli Tree Farm, 97 Brown Ave., Johnston, RI. Saturday, June 11th, 10:00 AM–2:00 PM, open to the public.
- **Edible Plant Walk With Russ Cohen:** Blackstone River State Park, Lincoln, RI. Saturday, June 18th, 1:00–4:00 PM. Fee: \$3 members; \$5 non-members.
- **Mountain Laurels & Mountain Terrain Walk:** Ell Pond, Hopkinton, RI. Sunday, June 19th, 1:30–4:30 PM. Fee: \$3 members; \$5 non-members.

May 1st–September 3rd. Advanced and specialty natural history seminars. Humboldt Field Research Institute, Steuben, Maine. Each summer, national and regional authorities in the field of natural history come to the Humboldt Institute, at

Eagle Hill on the coast of Maine, to lead intensive field seminars and workshops in their specialties. The seminars are offered for an advanced and professional audience, well-qualified graduate and undergraduate students, naturalists, and scientific illustrators. Seminar participants include professional field biologists and consultants, independent scholars, university professors, foresters, and teachers, as well as personnel from museums, botanical gardens, federal and state agencies, and numerous environmental organizations. Most programs meet all day from Monday through Friday and generally combine intensive field studies and follow-up work in the lab with lectures, discussions, and a review of the current literature. Meals are relaxed settings for informal discussions. Evenings are free for independent studies and/or slide presentations and follow-up discussions by the fireplace in the dining hall's comfortable lounge. Eagle Hill overlooks one of the most beautiful areas on the eastern seaboard, the rocky evergreen coast of Maine from Acadia National Park to Petit Manan National Wildlife Refuge and beyond. For the study of natural history, the unusual variety of essentially pristine habitats in the immediate area offers many outstanding opportunities. For a list of the seminars and dates, or for more information, please contact: Humboldt Institute, P.O. Box 9, Steuben, ME 04680-0009; (207) 546-2821; (207) 546-3042 (fax); office@eaglehill.us, or <http://www.eaglehill.us> (also for on-line registration).

June 4th 11:00 AM–7:00 PM. 2005 RI Sustainable Living Festival & Renewable Energy Expo. Apeiron Institute for Environmental Living, 451 Hammet Road, Coventry, RI. The festival is an education and entertainment extravaganza promoting Sustainable Living. Renewable

energy and earth-friendly living workshops, exhibits, vendors, and activities are accompanied by great food and live music for very unique learning. Past performers have included the John Scofield Band, Cheryl Wheeler, Ellis Paul, The Slip, Lucy Kaplansky, Paul Geremia, and Bill Morrissey. Other offerings include many eco-exhibitors, green vendors, AS220 artists, drummers, storytellers, Big Nazo puppets, and more. For more information, call (401) 397-3430, email Bekah.Greenwald@apeiron.org, or visit their home page at <http://www.apeiron.org>.

September 16th–17th. 2nd New England Invasive Plant Summit. Sheraton Framingham Hotel, Framingham, MA. Gather with scientists, land managers, policy-makers, educators, horticulturists, industry leaders, and volunteers who are seeking and sharing information about how we can work together to find solutions to the invasive plant problem in our region. Organizations and agencies will show displays highlighting their activities. Following the Summit, on September 18th, there will be an identification workshop for “early detection species” (limited to 50 people). The conveners are the Invasive Plant Atlas of New England (IPANE) and the New England Invasive Plant Group (NIPGro); organizers also include the University of Connecticut, Silvio O. Conte National Fish and Wildlife Refuge, and New England Wild Flower Society. A Call for Papers will be posted in spring 2005. For more information, or to download abstracts from the 2003 Summit, visit the IPANE home page (<http://www.ipane.org>), or contact Cynthia Boettner, NIPGro Coordinator, at Cynthia_Boettner@fws.gov or (413) 863-0209 x6.

Tell Us What You Know, Promote Your Organization... and maybe win free books!

- Do you have knowledge, resources, or expertise of significance to natural history in Rhode Island?
- Maybe you study arachnids, or vernal pools, or you give workshops on nature photography?
- Maybe you have a collection of insects, or pressed plants, or books on birds, or even photographs of natural places in the State?
- Maybe your organization provides environmental consulting services, or you work in a department that studies aspects of environmental science?

RI Natural History Survey is unveiling the newest edition of its popular *RI Natural History Directory*, and this time it's live and online! The new online *Directory* allows users to create and update their own entries, and to categorize their entries by general topic and detailed areas of focus. Add an entry for yourself or an organization you represent to the new online *RI Natural History Directory*, and you will have several chances to win a free RINHS publication. Follow the link to the Directory from our homepage (www.RINHS.org) or contact us at directory@rinhs.org for more information.

Other than the chance to win great books, why should I add an entry to the Directory? Hundreds of individuals, organizations, and collections collectively represent our knowledge of Rhode Island's flora, fauna, and ecosystems. But without the ability to find one another, there is no "collective" knowledge, just scattered pockets of information. The *RI Natural History Directory* is designed to increase communication among all those "pockets" and make their knowledge of Rhode Island's natural communities useful for everyone. Each person and organization adding an entry increases the collective whole, and also promotes his, her, or its own offerings, resources, and expertise.

OK, what about those great books? We will be randomly selecting a winner when the total number of entries in the Directory reaches 50, 100, 200, and at each following multiple of one hundred. Winners will receive their choice of any RINHS publication, FREE! (*The Beetle Fauna of Rhode Island*, *Illustrated Key to the Seaweeds of New England*, *Vascular Flora of Rhode Island*, *Vertebrates of Rhode Island*, *The Birds of the Kickemuit*, *The Ecology of Block Island*, *Foliose and Fruticose Lichens of Rhode Island* on CD, *Rhode Island Geology for the Non-geologist*, *Rhode Island Wildflowers*, or others that are on the way!).

The online Directory is made possible by a grant from the Virginia B. Butler Fund of The Rhode Island Foundation.

Writers Wanted

We are always looking for your contributions to future issues of *Rhode Island Naturalist*. Our new format is designed for increased visibility and enhanced focus on scientific research. We now lead off with Scientific Reports, and are especially interested in your contributions there. This is the perfect time to dust off that half-finished note in the back of your desk drawer. Contributions from amateur naturalists are particularly welcome. We are also looking for your contributions in these other areas:

- Reviews of recent books related to natural history (plants, animals, habitats, geology, hydrology, soils, etc.);
- Articles on Rhode Island natural history collections;
- "Focus On" pieces featuring one of the RINHS member organizations;
- Upcoming conferences, seminars, lectures, workshops, field trips, etc. that have natural history themes or components. Be sure to include: title of event, date, time, location, and contact information (phone, email, and/or web).
- Interesting web sites related to any aspect of natural history. Please include a brief summary and the complete URL.
- Opportunities for volunteers and students. Do you need volunteers for special projects? Offer internships? Have other natural history opportunities you'd like people to know about?
- Any other information you think would be pertinent to the Rhode Island ecological/natural history community.

We publish two issues per year, in spring and fall. The Fall 2005 issue is planned for distribution in November, and our working deadline for submissions is September 1st. Copies of recent issues can be viewed or downloaded at our web page — <http://www.rinhs.org> (go to "Web Publications," then "RI Naturalist"). For a copy of our author's guidelines, contact me at rkenney@gso.uri.edu or the RINHS office at info@rinhs.org. Or feel free to contact me if you have any other questions about submitting an article.

Robert D. Kenney, editor

Our Mission

- * To facilitate and coordinate the gathering and dissemination of information on RI's biota, ecological communities, and geological systems;
- * To enhance communication among RI's natural scientists, educators, and decision makers;
- * To provide sound scientific data that can be used to help make informed management decisions;
- * To foster the preservation of RI's natural history collections; and
- * To provide educational outreach.

To Contact Us...

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BioBlitz is coming to town!

On June 17 and 18, 2005, RINHS, along with our partners—the Mount Hope Farm and Trust, Brown University's Haffenreffer Museum of Anthropology and Department of Ecology and Evolutionary Biology, and Largess Forestry—will host its 6th annual BioBlitz, at Mount Hope in Bristol, Rhode Island.

Together, Mount Hope Farm and Brown own more than 500 contiguous acres, including working farmland, abandoned farmland in a variety of successional stages, mature hardwood forest, wetlands, bedrock outcrops and upland, and a mile of shoreline on Mount Hope Bay. The area is more or less the former farm and estate owned during the first half of the 20th century by Rudolf F. Haffenreffer, businessman and brewery owner, and it has many interesting historical associations that will probably be reflected in the flora and fauna. During the Cold War it housed a radar site, under Haffenreffer it was a dairy farm, and before that part of it was a Coney Island-style amusement park. Long ago, it was the home of colonial governors and of Wampanoag leader King Philip, who was killed there in 1676. The site is one of the largest undeveloped tracts in Bristol County, Rhode Island's most densely populated county. The site faces north across Mt. Hope Bay towards the largest coal-burning power plant in the Northeast, and much of the land has not been regularly open to the naturalist community.

So you ask, "What is a BioBlitz?" A BioBlitz is an attempt by volunteer naturalists to tally as many species of plants and animals as they can in 24 hours on a particular parcel of land. It includes educational activities for people of all ages and levels of expertise. It is designed to increase awareness of the variety of life that surrounds us on even the most mundane-looking land, and of the value of these species to the quality of our lives. In the first RINHS BioBlitz in June of 2000, 33 volunteers observed 663 species in a highly degraded urban park in Providence. In June 2004, 110 volunteers shared in the discovery of over 1,000 species in a conservation area in West Greenwich. In addition to generating publicity for the issue of biodiversity, BioBlitz yields valuable information for the Survey's databases. The land-owners of each BioBlitz site benefit from the rapid assessment of their property, identifying sites and species as potential education or conservation targets, and generating publicity for their land conservation efforts. BioBlitz is one of the Survey's signature programs.

More information about our BioBlitz partners can be found on their websites: <http://www.mounthopefarm.com>, <http://www.brown.edu/Facilities/Haffenreffer>, and <http://www.largessforestry.com>.

Hope to see you there!



Providing Ecosystem Science and Information

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