

ISSN: 0034-2165

# *The* REDSTART

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VOLUME 61, NUMBER 3

JULY, 1994

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PUBLISHED BY THE BROOKS BIRD CLUB

## 1994 - The Brooks Bird Club, Inc.

Founded September 1932  
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*The Redstart* is published quarterly in January, April, July, and October at 707 Warwood Ave., Wheeling, WV 26003. The journal of the Brooks Bird Club, it is mailed to all members in good standing. Nonmember subscription price is \$17. Individual copies are \$4, except the Foray issue, which is \$8. Changes of address and requests for back issues should be mailed to 707 Warwood Ave., Wheeling, WV 26003. Articles for publication and books for review should be mailed to the editor. Printed on recycled paper by BookMasters, Inc., Ashland, OH.

ISSN: 0034-2165

## The 1993 Sortie Area Survey

A. Kyle Bush

The 1993 Sortie was held from June 15 through June 20, 1993, at Nathaniel Mountain Public Hunting Area in Hampshire County. The ranger's cabin served as our headquarters. Hampshire County is the oldest county in West Virginia, formed in 1733 from Fredrick and Augusta counties of Virginia. The Nathaniel Public Hunting Area consists of 8,194 acres. At the border of Hampshire and Mineral counties, the high ground begins in the Helderberg-Oriskany sands. East of this there is a broad syncline in which the strata from the Marcellus to the Portage and back again to the Marcellus appear. A fold in the Oriskany at the surface forms a steep-sided syncline valley occupied by the South Branch of the Potomac River. A broad syncline is formed with the Catskill and Chumung strata near the surface. These are all of the Devonian Period.

Our first sortie at Nathaniel Mountain was held from May 28 through June 3, 1989. An important reason for choosing Nathaniel Mountain was to determine the effects of the Gypsy Moth infestation occurring there in 1989 on the bird population. The 1993 Sortie was carried out at the suggestion of Chandler Robins of the U. S. Fish and Wildlife Service to compare the effects of the gypsy moth defoliation with observations made in 1989. We found that close to our headquarters the gypsy moth infestation was not as severe as in 1989. However, the east side of the mountain was severely defoliated.

Those attending the Sortie were Elizabeth Bullard, James Bullard, Eleanor Bush, Kyle Bush, Greg Eddy, Cynthia Ellis, Thomas Fox, Virginia Johnson, Marjorie Keatley, Ann Pyle, Carl Slater, Juanita Slater, Gordon Vujevic, Judith Ward, and Roy Ward.

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## 1993 Nathaniel Mountain Sortie Bird List

Thomas R. Fox

Comparison of bird populations with the 1989 Sortie was made difficult due to the fact that non-standard abundance terms were used to describe populations of birds in the 1989 Sortie, and the 1993 Sortie started 17 days later than the 1989 Sortie; however, both studies were held within the safe dates of most species, so comparison is reasonable. Although the number of species and the number of birds were similar in both studies, data from the Breeding Bird Surveys, Singing Male Censuses, and personal observations of the participants indicated the following changes:

Yellow-billed Cuckoos were plentiful in 1989, and they were even more so in 1993. Increases were reported in all species of woodpeckers. All commentators remarked on the abundance of Mimidae. No warbler showed an increase, but most species showed decreases. The Acadian Flycatcher showed a substantial increase, but Orchard Orioles decreased 85% on Breeding Bird Surveys.

What conclusions can be drawn from this information? Not many, but one may speculate that the increase in the woodpeckers was due to the increased number of dead trees as a result of the gypsy moth infestation. The increase in cuckoos may be due to the abundance of caterpillars. Lush understory, due to increased sunlight resulting from holes left in the canopy by the dead trees, may have caused the increase in Acadian Flycatchers. Mimidae may have benefitted from increased edge or food. I am unable to explain the changes in warbler and oriole populations.

The standard terms used to describe abundance of each species are as follows:

Very Common—seen in large numbers every day in all appropriate habitats.

Common—seen in appropriate habitat every day without any special effort.

Uncommon—seen in appropriate habitat only with a lot of effort.

Rare—one or two only seen in the entire study region during the study period.

**Green Heron**—Uncommon.

**Canada Goose**—Uncommon.

**Wood Duck**—Rare.

**Turkey Vulture**—Common.

**Red-shouldered Hawk**—Rare.

**Broad-winged Hawk**—Rare.

**Red-tailed Hawk**—Uncommon.

**American Kestrel**—Rare. None found on BBS runs, but one visited the Oak-Maple study plot, which was not appropriate habitat.

**Ring-necked Pheasant**—Rare. Loop Road. Rt. 10 E.

**Ruffed Grouse**—Common.

**Wild Turkey**—Common.  
**Northern Bobwhite**—Uncommon.  
**Killdeer**—Common.  
**Rock Dove**—Common.  
**Mourning Dove**—Common.  
**Black-billed Cuckoo**—Rare. Only one reported, found nesting on the Oak-Pine study plot.  
**Yellow-billed Cuckoo**—Very Common. Commentators felt it was the most they had ever seen.  
**Barred Owl**—Uncommon. No special effort was made to locate owls.  
**Common Nighthawk**—Common. In Romney.  
**Whip-poor-will**—Common. Along Nathaniel Mountain Road at night.  
**Chimney Swift**—Common.  
**Ruby-throated Hummingbird**—Uncommon. Rare in 1989. None found on BBS runs.  
**Belted Kingfisher**—Uncommon.  
**Red-bellied Woodpecker**—Common.  
**Downy Woodpecker**—Common.  
**Hairy Woodpecker**—Uncommon.  
**Northern Flicker**—Common.  
**Eastern Wood-Pewee**—Common.  
**Acadian Flycatcher**—Common. Increased from zero on the Oak-Maple study area in 1989 to 2.5 in 1993.  
**Least Flycatcher**—Rare. A slight decrease from 1989.  
**Eastern Phoebe**—Common.  
**Great Crested Flycatcher**—Common.  
**Eastern Kingbird**—Common.  
**Horned Lark**—Rare. Found on BBS Route No. 4.  
**Tree Swallow**—Uncommon.  
**Northern Rough-winged Swallow**—Rare. Found on BBS Run No. 2.  
**Bank Swallow**—Rare. Several birds were found in one colony on Rt. 8.  
**Barn Swallow**—Common.  
**Blue Jay**—Common.  
**American Crow**—Very Common.  
**Common Raven**—Common. Rare in 1989.  
**Black-capped Chickadee**—Common.  
**Tufted Titmouse**—Common.  
**Red-breasted Nuthatch**—Rare. Found at Short Mountain Bog. Not found in 1989.  
**White-breasted Nuthatch**—Common.  
**Carolina Wren**—Common. Reported uncommon in 1989.  
**House Wren**—Common.  
**Winter Wren**—Rare. Found on Nathaniel Mountain in two locations. It was not found

1989. This bird had not been previously reported in Hampshire County (Hall, 1983).  
**Blue-gray Gnatcatcher**—Common. Uncommon in 1989.  
**Eastern Bluebird**—Common.  
**Wood Thrush**—Common.  
**American Robin**—Common.  
**Gray Catbird**—Very Common.  
**Northern Mockingbird**—Very Common.  
**Brown Thrasher**—Common. All commentators reported increases in all species of Mimidae.  
**Cedar Waxwing**—Common.  
**European Starling**—Common.  
**Solitary Vireo**—Uncommon.  
**Yellow-throated Vireo**—Uncommon.  
**Warbling Vireo**—Rare. Found in one location along the South Branch of the Potomac River.  
**Red-eyed Vireo**—Common.  
**Northern Parula**—Rare. One location on BBS Route No. 1.  
**Yellow Warbler**—Uncommon. A decrease from 1989.  
**Chestnut-sided Warbler**—Rare. Found at Short Mountain Bog.  
**Yellow-throated Warbler**—Rare. One location on the South Branch of the Potomac River.  
**Pine Warbler**—Uncommon. Substantial reduction since 1989.  
**Prairie Warbler**—Rare. Nine reported in 1989; only two in 1993.  
**Cerulean Warbler**—Uncommon.  
**Black-and-white Warbler**—Common.  
**American Redstart**—Common.  
**Worm-eating Warbler**—Rare. Three birds found at two locations on BBS Route No. 3.  
**Ovenbird**—Common.  
**Louisiana Waterthrush**—Uncommon.  
**Common Yellowthroat**—Common.  
**Hooded Warbler**—Uncommon. Only two reported on BBS.  
**Yellow-breasted Chat**—Uncommon.  
**Summer Tanager**—Rare. One near Peterkin and another at Harmison's Landing.  
**Scarlet Tanager**—Common.  
**Northern Cardinal**—Common.  
**Rose-breasted Grosbeak**—Uncommon.  
**Indigo Bunting**—Very Common.  
**Rufous-sided Towhee**—Very Common.  
**Chipping Sparrow**—Very Common.  
**Field Sparrow**—Common.  
**Vesper Sparrow**—Rare. One found on Rt. 10. A definite decrease, as 10 were found on

BBS runs in 1989.

**Savannah Sparrow**—Rare. One on Route 10.

**Grasshopper Sparrow**—Common.

**Song Sparrow**—Common.

**Swamp Sparrow**—Rare. Found at Short Mountain Bog.

**Red-winged Blackbird**—Common.

**Eastern Meadowlark**—Common.

**Common Grackle**—Common.

**Brown-headed Cowbird**—Common.

**Orchard Oriole**—Uncommon. An 80% decrease from 1989.

**Northern Oriole**—Common.

**House Finch**—Uncommon.

**American Goldfinch**—Common.

**House Sparrow**—Uncommon.

#### Reference

Hall, G.A. (1983). *West Virginia Birds*. Pittsburgh: Carnegie Museum of Natural History, Special Publication No. 7.

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Millstone, WV 25261

## The 1993 Sortie Breeding Bird Surveys

Ann H. Pyle

Four breeding bird surveys, over the same roads, were run at both the 1989 and 1993 Nathaniel Mountain sorties (see *The Redstart*, 57(3), 68). In 1993 on Run 1, Nathaniel Mountain and north on Route 10, 60 species were found; Run 2, east of Nathaniel Mountain and Kirby Circle, 57 species; Run 3, northeast of Nathaniel Mountain toward Rio, 52 species; and Run 4, Route 29 Shanks to Kirby, 55 species. The average number of species per run was 56 birds.

The five participants, James Bullard, Kyle Bush, Greg Eddy, Cynthia Ellis, and Ann Pyle, identified 84 separate species for a total of 1,143 birds. Starting in their vehicle at the top of the mountain at about 5 a.m. each morning they descended the rough road for five miles. On their four routes they made 3-minute stops each half-mile for 10 miles, and returned in time to join the other campers for breakfast. Table 1 gives the number of birds observed and the number of stops on which each was present. Table 2 gives the most abundant species observed and a comparison of the percent of the total number each represented in 1989 and 1993.

Table 1

Number of Birds by Species

Species	Number	Stops Present
Wood Duck	2	1
Turkey Vulture	3	3
Red-shouldered Hawk	1	1
Broad-winged Hawk	1	1
Red-tailed Hawk	1	1
Ring-necked Pheasant	4	2
Wild Turkey	4	3
Northern Bobwhite	4	3
Killdeer	13	9
Rock Dove	4	1
Mourning Dove	32	22
Yellow-billed Cuckoo	31	27
Whip-poor-will	4	2
Chimney Swift	5	4
Belted Kingfisher	1	1

Species	Number	Stops Present
Red-bellied Woodpecker	6	6
Downy Woodpecker	1	1
Hairy Woodpecker	1	1
Pileated Woodpecker	10	10
Northern Flicker	23	20
Eastern Wood-Pewee	16	14
Acadian Flycatcher	9	8
Least Flycatcher	2	2
Great Crested Flycatcher	19	12
Eastern Phoebe	26	21
Eastern Kingbird	4	3
Horned Lark	2	1
Tree Swallow	1	1
Northern Rough-winged Swallow	2	1
Cliff Swallow	1	1
Barn Swallow	39	19
Blue Jay	14	14
American Crow	84	49
Common Raven	5	4
Black-capped Chickadee	7	6
Tufted Titmouse	22	20
White-breasted Nuthatch	4	4
Carolina Wren	19	18
House Wren	8	8
Winter Wren	1	1
Blue-Gray Gnatcatcher	7	7
Eastern Bluebird	16	13
Wood Thrush	32	23
American Robin	49	31
Gray Catbird	36	27
Northern Mockingbird	29	23
Brown Thrasher	11	11
Cedar Waxwing	6	4
European Starling	62	11
White-eyed Vireo	1	1
Solitary Vireo	1	1
Yellow-throated Vireo	1	1
Red-eyed Vireo	23	18
Northern Parula Warbler	1	1

Species	Number	Stops Present
Yellow Warbler	4	4
Pine Warbler	1	1
Prairie Warbler	2	2
Cerulean Warbler	1	1
Black-and-white Warbler	1	1
Worm-eating Warbler	3	2
Hooded Warbler	2	2
Ovenbird	13	9
Louisiana Waterthrush	2	2
Common Yellowthroat	5	5
Yellow-breasted Chat	4	4
Scarlet Tanager	18	15
Northern Cardinal	19	18
Rose-breasted Grosbeak	1	1
Indigo Bunting	70	48
Rufous-sided Towhee	31	25
Chipping Sparrow	55	40
Field Sparrow	31	28
Savannah Sparrow	1	1
Grasshopper Sparrow	7	3
Song Sparrow	24	21
Red-winged Blackbird	27	17
Eastern Meadowlark	24	18
Common Grackle	35	9
Brown-headed Cowbird	10	10
Orchard Oriole	2	2
Northern Oriole	10	10
House Finch	1	1
American Goldfinch	15	13
House Sparrow	13	7
Total Species 1993	84	
Total Species 1989	80	
Total individuals 1993	1,143	
Total individuals 1989	1,285	



Table 2

## Most Abundant Species

Species	Number Recorded	1993	1989
		Percent of Total	
American Crow	84	7.3	2.8
Indigo Bunting	70	6.1	5.4
European Starling	62	5.4	2.4
Chipping Sparrow	55	4.8	3.7
American Robin	49	4.3	6.1
Barn Swallow	39	3.5	3.7
Gray Catbird	36	3.1	2.4
Common Grackle	35	3.1	1.3
Mourning Dove	32	2.8	1.8
Wood Thrush	32	2.8	1.3
Rufous-sided Towhee	31	2.7	3.4
Yellow-billed Cuckoo	31	2.7	1.5
Field Sparrow	31	2.7	2.4
Northern Mockingbird	29	2.5	2.3
Red-winged Blackbird	27	2.4	7.9

In 1989, 19 Yellow-billed Cuckoos were found on 11 stops; in 1993, 31 were found on 27 stops. They were widely distributed in the area, probably in response to the continued presence of the Gypsy Moth.

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## 1993 Sortie Singing Male Census

Greg Eddy

In 1989 two singing male census study areas were run on the top of Nathaniel Mountain, a 15-acre plot (Oak-Pine) and a 30-acre plot (Oak-Maple). At that time a Gypsy Moth infestation was defoliating much of the forest in the area. The plots were rerun during the 1993 Sortie in an attempt to determine the effect of the defoliation on the bird population.

By 1993 the forest had recovered as could be seen by the increase in canopy cover, from 56% to 63.3% on the Oak-Pine plot and from 74% to 95.8% on the Oak-Maple plot, and by the resulting decrease in shrubs in the understory, from 4,666/acre to 950/acre on the Oak-Pine and from 3,250/acre to 1783/acre on the Oak-Maple plot. Another change that may be significant is that the number of trees of all species increased on the Oak-Pine plot. On the Oak-Maple plot the number of White Oak trees decreased and the Red Oak increased. The White Oak decreased from 33/acre to 8.3/acre, and from a relative dominance of 22% to 10.2%. Red Oak increased from 29/acre to 44.2/acre and in relative dominance from 35% to 62%. This could show that Red Oak survived the Gypsy Moth infestation whereas the White Oak were greatly depleted. Although the number of dead trees slightly decreased in 1993, they appeared to be mostly dead White Oak.

In spite of these changes to the forest, the bird population underwent very little change on either plot. On the Oak-Maple plot Eastern Wood-Pewees increased from 25/100 acres to 41/100 acres, but no other species changed significantly. A few species appeared that were not present in 1989, although none in any number except Acadian Flycatchers on the Oak-Maple, which were represented by 20/100 acres. This is somewhat of a mystery because the Oak-Maple plot is not prime Acadian Flycatcher habitat. The plot is a nearly flat, dry area on the top of the mountain. Also, it is interesting to note that the only Black-billed Cuckoo discovered during the Sortie was the one on the Oak-Pine plot.

A new method, at least to us, was used to run the Oak-Maple plot. Participants were stationed at different parts of the plot and stayed there, plotting all the birds in their area of responsibility. This method made it possible to census the area evenly and completely but it required a rather large number of experienced personal and will probably be impossible on most of the plots that we run.

OAK-MAPLE—Location: West Virginia; Hampshire County; 10.5 miles SSW of Romney; NE corner at 39° 11' 50" N, 78° 47' 40" W, Sector Quadrangle, USGS. Continuity: Established 1989. See *The Redstart*, 57(3), 65. Size: 12.14 ha = 30 acres (440 x 330 yards). Description of plot: Plot was laid out in the Nathaniel Mountain Public Hunting and Fishing Area; a deciduous forest with an access road dissecting the plot NE

to SW. The dominant canopy trees are oaks (*Quercus* sp.) and Red Maple (*Acer rubrum*). Most prominent in the understory is Mountain Laurel (*Kalmia latifolia*). The ground cover is primarily Blueberries (*Vaccinium* sp.). A quantitative survey of the vegetation gave the following results: Trees 3-inches diameter and over, based on six 0.1 acre circular samples: 257/acre; total basal area 174 sq. ft./acre. Species comprising 92% of the total number of trees: Red Oak (*Quercus rubra*), 61.6, 24, 44.2, 100; Chestnut Oak (*Q. prinus*), 18.3, 7.1, 13, 50; White Oak (*Q. alba*), 8.3, 3.2, 10.2, 33; Black Oak (*Q. velutina*), 1.6, 0.6, 1.7, 16; Red Maple, 63.3, 24.6, 8.4, 83; Striped Maple (*A. pensylvanicum*), 11.6, 4.5, 0.6, 50; Black Birch (*Betula lenta*), 23.3, 9, 2.8, 66; Dead, 48.3, 18.8, 14.5, 100. Figures following each species denote number of trees per acre, relative density %, relative dominance %, and relative frequency. Trees by diameter size class: A (3-6 in.) 113.3, 44.1, 11.3, 6.5; B (6-9 in.) 36.6, 14.2, 11, 6.3; C (9-15 in.) 63.3, 24.6, 50.6, 29.1; D (15-21 in.) 28.3, 11, 51, 29.3; E (21-27 in.) 13.3, 5.1, 41.3, 23.8; F (27-33 in.) 1.6, 0.6, 8.1, 4.7. Figures following each class show number of trees per acre, relative density, basal area per acre for that class, and relative dominance. Shrub stems/acre 1,783; ground cover 16.2%; canopy cover 95.8%; average canopy height 63.4 ft. (range 50-75). Edge: Continues on all sides, but some minor edge habitat is caused by the access road that runs through the plot. Topography: A mountain-top plot mostly level, dropping off on the NW edge. A river of rocks dissects the plot, running NE to SW, near the center. Elevation: 2,940-3,000 ft. Weather: Temperature during census runs was from 55 to 78° F. Coverage: June 15-20, 1993. All census between dawn and 0700 hours, or 1845 and 2000 hours EDT. Total party-hours: 65.25. Census: Ovenbird, 5.5 (45, 18); Eastern Wood-Pewee, 5 (41, 17); Acadian Flycatcher, 2.5; Red-eyed Vireo, 2; Great Crested Flycatcher, 1.5; Solitary Vireo, 1; Scarlet Tanager, 1; Hairy Woodpecker, 0.5; White-breasted Nuthatch, 0.5; Wood Thrush, 0.5; Black-and-White Warbler, 0.5; Rufous-sided Towhee, 0.5; Chipping Sparrow, 0.5; Least Flycatcher, +; Tufted Titmouse, +. Total: 16 species; 21.5 territorial males (177/sq. km., 72/100 acres). Visitors: Wild Turkey, Downy Woodpecker, Pileated Woodpecker, Blue Jay, Common Raven, Black-capped Chickadee, Pine Warbler, Brown-headed Cowbird, Rose-breasted Grosbeak. Comments: Fledgling Downy Woodpeckers were seen. This was the second time this plot has been surveyed. The first survey was conducted during a gypsy moth infestation. During this survey there was no obvious infestation, but the presence of several skeletons of oaks on the plot was evidence of damage from the past defoliation. Census participants: Elizabeth Bullard, Greg Eddy, Cynthia Ellis, Thomas Fox (compiler), Virginia Johnson, Marjorie Keatley, Nevada Laitsch, Gordon Vujevic, Judith Ward.

OAK-PINE—Location: West Virginia; Hampshire County; 8.5 miles S of Romney; center line begins at 39° 12' 40" N, 78° 46' 45" W; Sector Quadrangle, USGS and extends NE. Continuity: Established 1989. See *The Redstart*, 57(3), 65. Size: 6.07 ha = 15.0 acres (110 x 660 yards). Description of plot: Flat ridge-top in Nathaniel Mountain Public Hunting and Fishing Area. The three dominant canopy trees are Chestnut Oak (*Quercus*

*prinus*), Pitch Pine (*Pinus rigida*), and Black Gum (*Nyssa sylvatica*). Most prominent in the understory are Mountain Laurel (*Kalmia latifolia*) and Rose Azalea (*Rhododendron roseum*). The ground cover is primarily Blueberries (*Vaccinium* sp.). A quantitative survey of the vegetation gave the following results: Trees 3-inches diameter and over, based on three 0.1 acre circular samples: 410/acre; total basal area 90 sq. ft./acre. Species comprising 100% of the total number of trees: Chestnut Oak, 246.6, 60.1, 60.3, 100; Pitch Pine, 33.3, 8.1, 18.4, 66; Black gum, 53.3, 13, 5.8, 66; Dead, 76.6, 18.6, 15.5, 100. Figures following each species denote number of trees per acre, relative density %, relative dominance %, and relative frequency. Trees by diameter size class: A (3-6 in.) 240, 58.5, 24, 26.6; B (6-9 in.) 140, 34.1, 42, 46.6; C (9-15 in.) 30, 7.3, 24, 26.6. Figures following each class show number of trees per acre, relative density, basal area per acre for that class, and relative dominance. Shrub stems/acre 950; ground cover 88.3%; canopy cover 63.3%; average canopy height 38 ft. (range 35-42.5). Edge: Continues on all sides. Elevation: 2,580-2,640 ft. Weather: Warm, breezy, sometimes overcast. Coverage: June 15-20, 1993. All trips between dawn and 0745 hours, or 1915 and 2025 hours EDT. Total party-hours: 13.8. Census: Rufous-sided Towhee, 8 (132, 53); Ovenbird, 4.5 (74, 30); Pine Warbler, 2; Indigo Bunting, 1.5; Black-billed Cuckoo, 0.5; Hooded Warbler, 0.5; Scarlet Tanager 0.5. Total: 7 species; 17.5 territorial males (288/sq. km., 117/100 acres). Visitors: Black-capped Chickadee, Cedar Waxwing. Comments: This study plot was run for the first time in 1989 and at that time, the young oak forest was being defoliated by tremendous numbers of Gypsy Moths. In 1993, defoliation was not as bad; consequently, the understory has changed as the vegetation study proves. Throughout the area, cuckoo population has increased. Census participants: James Bullard, Cynthia Ellis, Carl Slater, Juanita Slater (compiler). Vegetation surveyors: Greg Eddy, Cynthia Ellis, Carl Slater, Juanita Slater.

3 Aster Drive, Clinton Hills  
Tridelfia, WV 26059



## Lepidoptera at the 1993 Sortie

Virginia Johnson

Several butterflies were identified at or near the cabin and on trips in the Sortie area. The moths were found at the cabin, having been attracted by the porchlight, and were then identified the following morning except for the Luna moth specimen, which was found on a trip off the mountain.

### Butterflies

Great Spangled Fritillary	<i>Speyeria cybele</i>
Red Admiral	<i>Vanessa atalanta</i>
Red-spotted Purple	<i>Limenitis arthemis astyanax</i>
Spring Azure	<i>Celastrina argiolus</i>
Tiger Swallowtail	<i>Papilio glaucus</i>
Spicebush Swallowtail	<i>Papilio troilus</i>
Clouded Sulpher	<i>Colias philodice</i>
Cabbage Butterfly	<i>Pieris rapae</i>
Silver-spotted Skipper	<i>Epargyreus clarus</i>

### Moths

Luna Moth	<i>Actias luna</i>
Forest Tent Caterpillar Moth	<i>Malacosoma disstria</i>
Eastern Tent Caterpillar Moth	<i>Malacosoma americanum</i>
Fall Webworm Moth	<i>Hyphantria cunea</i>
Virgin Tiger Moth	<i>Grammia virgo</i>
Crocus Geometer	<i>Xanthotype sospeta</i>

24 Robinson Street  
Uniontown, PA 15401

## Plant List for the 1993 Sortie

Eleanor Bush

The following is a list of vascular plants noted at the 1993 Sortie, Hampshire County, West Virginia. Most of the plants were catalogued on Nathaniel Mountain and close vicinities. Some plants seen on trips to a bog on Short Mountain (SMT) and to Ice Mountain (ICM) are included. The fern list was compiled by Gordon Vujevic. Ann Pyle contributed a plant list from Ice Mountain.

### PTERIDOPHYTA

<i>Lycopodium obscurum</i> L.	Tree Clubmoss (SMT)
<i>Botrychium virginianum</i> (L.), SM.	Rattlesnake Fern
<i>Osmunda claytonia</i> L.	Interrupted Fern
<i>Osmunda regalis</i> L.	Royal Fern (SMT)
<i>Cystopteris fragilis</i> (L.) Bernh.	Brittle Fern
<i>Woodsia obtusa</i> (Spreng.) Torr.	Blunt-lobed Woodsia
<i>Onoclea sensibilis</i> L.	Sensitive Fern
<i>Gymnocarpium dryopteris</i> (L.) Newman	Oak Fern (ICM)
<i>Thelypteris noveboracensis</i> Nieuwl.	New York Fern
<i>Thelypteris palustris</i> Schott.	Marsh Fern (SMT)
<i>Dryopteris cristata</i> (L.) Gray	Crested Shield Fern
<i>Dryopteris marginalis</i> (L.) Gray	Marginal Shield Fern
<i>Dryopteris spinulosa</i> (O. F. Muell) Watt.	Spinulose Shield Fern
<i>Dryopteris intermedia</i> Gray	Intermedia Wood Fern
<i>Polystichum aristichoides</i> (Michx.) Schott	Christmas Fern
<i>Dennstaedtia punctilobula</i> (Michx.) Moore	Hay-scented Fern
<i>Athyrium asplenoides</i> A. Eaton	Southern Lady Fern
<i>Asplenium platyneuron</i> (L.) Oakes	Ebony Spleenwort
<i>Pteridium aquilinum</i> (L.) Kuhn	Bracken Fern
<i>Polypodium virginianum</i> L.	Common Polypody (SMT)

### SPERMATOPHYTA

#### PINACEAE

<i>Pinus virginiana</i> Mill.	Scrub Pine (SMT)
<i>Pinus rigida</i> Mill.	Pitch Pine (SMT)
<i>Pinus pungens</i> Lamb.	Table Mountain Pine (SMT)

## TAXACEAE

*Tsuga canadensis* (L.) Carr. Hemlock

## CYPERACEAE

*Dulichium arundinaceum* (L.) Britton Three-way Sedge

## ARACEAE

*Symplocarpus foetidus* (L.) Nutt. Skunk Cabbage

## COMMELINACEAE

*Tradescantia virginiana* L. Spiderwort

## IRIDACEAE

*Iris verna* L. Dwarf Iris

## ORCHIDACEAE

*Cypripedium acaule* Ait. Pink Lady's Slipper  
*Habenaria clavellata* (Michx.) Spreng. Small Green Wood Orchid (SMT)  
*Habenaria orbiculata* (Pursh.) Torr. Large Round-leaved Orchid  
*Goodyera pubescens* (Willd.) R.Br. Downy Rattlesnake Plantain  
*Liparis lilifolia* (L.) Richard. Large Twayblade

## MYRICACEAE

*Comptonia peregrina* (L.) Coult. Sweet Fern

## JUGLANDACEAE

*Carya glabra* (Mill.) Sweet Pignut Hickory

## CORYLACEAE

*Corylus americana* Walt. Hazelnut

## FAGACEAE

*Quercus alba* L. White Oak  
*Quercus rubra* L. Red Oak  
*Quercus prinus* L. Chestnut Oak  
*Quercus ilicifolia* Wang. Scrub Oak

## POLYGONACEAE

*Rumex crispus* L. Curly Dock

## CARYOPHYLLACEAE

*Silene cucubolus* Wibel Bladder Campion  
*Silene pensylvanica* (Michx.) Willd. Pink. A white form here (SMT)  
*Dianthus armeria* L. Deptford Pink

## RANUNCULACEAE

*Anemone quinoquefolia* L. Wood Anemone  
*Aquilegia canadensis* L. Wild Columbine  
*Thalictrum polygamum* Muhl. Tall Late Meadowrue  
*Thalictrum revolutum* DC. Revolute Meadowrue  
*Cimicifuga perfoliate* L. Mealy Bellwort

## LAURACEAE

*Lindera benzoin* (L.) Blume Spicebush

## SAXIFRAGACEAE

*Heuchera* sp.  
*Ribes grandulosum* Grauer Skunk Currant (ICM)

## CRUCIFERAE

*Brassica nigra* (L.) Koch Black Mustard  
*Allaria officinalis* Andry Garlic Mustard  
*Erysimum cheiranthoides* L. Wormseed Mustard  
*Arabis canadensis* L. Sicklepod

## DROSERACEAE

*Drosera rotundifolia* L. Sundew (SMT)

## HAMAMELIDACEAE

*Hamamelis virginiana* L. Witchhazel

## ROSACEAE

*Physocarpus opulifolius* (L.) Maxim. Nine Bark  
*Spirea corymbosa* Raf. Corymbed Spirea  
*Amelanchier spicata* (Lam.) Koch Low Serviceberry  
*Rubus phoenicolasius* Maxim. Wineberry  
*Sanguisorba canadensis* L. Burnet  
*Rosa carolina* L. Pasture Rose  
*Prunus serotina* Ehrh. Wild Black Cherry

# LEGUMINACEAE

*Robinia pseudo-acacia* L.  
*Baptisia tinctora* (L.) R. Br.

Black Locust  
Wild Indigo

# LILIACEAE

*Uvularia perfoliata* L.  
*Uvularia pudica* (Walt.) Fernald  
*Allium cernuum* Roth.  
*Medeola virginiana* L.  
*Maianthemum canadense* Desf.

Mealy Bellwort  
Mountain Bellwort  
Wild Onion  
Indian Cucumber  
Wild Lily of the Valley (ICM)

# AMARYLLIDACEAE

*Hypoxis hirsuta* (L.) Cornville

Yellow Stargrass

# ANACARDIACEAE

*Rhus typhina* L.

Staghorn Sumac

# ACERACEAE

*Acer pensylvanicum* L.  
*Acer rubrum* L.

Striped Maple  
Red Maple

# TILACEAE

*Tilia americana* L.

Basswood

# VIOLACEAE

*Viola cucullata* Ait.  
*Viola papilionaceae* Pursh.  
*Viola fimbriatula* Sm.  
*Viola sagittata* Ait.  
*Viola trilobata* Schwein.  
*Viola palmata* L.  
*Viola blanda* Willd.  
*Viola primifolia* L.

Marsh Blue Violet (SMT)  
Common Blue Violet  
Ovate-leaved Violet  
Arrow-leaved Violet  
Three-lobed Violet  
Palmate-leaf Violet  
White Sweet Violet  
Primrose-leaf Violet

# THYMELACEAE

*Elaeagnus umbellata* Thunb.

Autumn Olive

# NYSSACEAE

*Nyssa sylvatica* Marsh

Black Gum

# ARALICEAE

*Aralia nudicaulis* L.

Wild Sarsparilla

# UMBELLIFERA

*Thaspium barbinode* (Michx.) Nutt.  
*Heracleum maximum* Bartr.

Hairy-jointed Meadow Parsnip  
Cow Parsnip

# CORNACEAE

*Cornus canadensis* L.

Dwarf Cornel (ICM)

# PYROLACEAE

*Pyrola rotundifolia* L.

Round-leaved American Wintergreen

# ERICACEAE

*Rhododendron nudiflorum* (L.) Torr.  
*Menziesia pilosa* (Michx.) Juss.  
*Kalmia latifolia* L.  
*Oxydendron arboreum* (L.) DC.  
*Epigaea repens* L.

Pinxter Flower  
Minnie-Bush (ICM)  
Mountain Laurel  
Sourwood  
Trailing Arbutus

# PYGALACEAE

*Polygala paucifolia* Willd.  
*Polygala verticillata* L.  
*Polygala polygama* Walt.

Gay Wings  
Whorled Milkwort  
Racemed Milkwort

# PRIMULACEAE

*Trientalis borealis* Raf.  
*Lysimachia hirsuta* L.

Star Flower (SMT)  
Fringed Loosestrife

# GERANIACEAE

*Geranium maculatum* L.

Wild Ginger

# APOCYNACEAE

*Apocynum androsaemifolium* L.

Spreading Dogbane

# SCROPHULARIACEAE

*Verbascum blattaria* L.  
*Linaria vulgaris* L.  
*Scrophularia lanceolata* Pursh  
*Penstemon laevigatus* Ait.  
*Pedicularis canadensis* L.

Moth Mullen  
Butter-and-Eggs  
Hare Figwort  
Smooth Beardstongue  
Common Lousewort

# RUBICEAE

<i>Galium concinnum</i> T. & G.	Shining Bedstraw
<i>Houstonia caerulea</i> L.	Bluets
<i>Houstonia tenuifolia</i> Nutt.	Slender-leaved Bluets.

# CAPRIFOLIACEAE

<i>Lonicera japonica</i> Thumb.	Japanese Honeysuckle
<i>Linnaea americana</i> L.	Twin-flower (ICM)

# CAMPANULACEAE

<i>Specularia perfoliata</i> (L.,) DC	Venus Looking Glass
<i>Campanula rotundifolia</i> L.	Harebell

# LOBELIACEAE

<i>Lobelia spicata</i> Lam.	Spiked Lobelia. White. (ICM)
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# ASTERACEAE

<i>Eupatorium rugosum</i> Houtt.	White Snakeroot
<i>Erigeron philadelphicus</i> L.	Philadelphia Fleabane
<i>Verbesina alternifolia</i> (L.) Brit. ex Kear.	Wing Stem
<i>Matricaria matricarioides</i> Porter	Pineapple Weed
<i>Artemisia annua</i> L.	Annual Wormwood
<i>Cirsium arvense</i> (L.) Scop.	Canada Thistle
<i>Soncus aspera</i> (L.) Hill	Spiny Sow Thistle
<i>Hieracium pratense</i> Tausch.	Field Hawkweed
<i>Hieracium venosum</i> L.	Rattlesnake Weed
<i>Hieracium scabrum</i> Michx.	Rough Hawkweed

5 Bush Avenue  
Philippi, WV 26416

## Field Notes Winter Season

December, 1993-February, 1994

James D. Phillips, Editor

The winter of 1993-94 will be remembered for extreme weather and an invasion of northern species. Snowfalls of 12 to 30 inches covered the ground for a month or more in many areas. Ice storms of two inches and more caused quite a bit of damage to forests that may be evident for years to come in Mercer, Summers, and Raleigh counties. In some areas January temperatures were anywhere from 20-30 degrees below zero. Northern invaders included **Red-necked Grebes**, **Common** and **Hoary redpolls**, **Pine Siskins**, **Evening Grosbeaks**, and **American Tree Sparrows**. Several species of diving ducks were present in higher than usual numbers and were more widespread. The spring and summer months should indicate if any resident species suffered from the weather. Some reporters expressed concern for **Belted Kingfishers** and **Carolina Wrens**.

**Loons through ducks**—**Common Loons** had left Barbour County(KB) by the second week of December but were still present in Canaan Valley, Tucker County(JN)



A Red-necked Grebe with three Horned Grebes on the Ohio River near Proctor, West Virginia, on February 15, 1994. Photograph by Jamie Fenske.

the third week of that month. They were present on Bluestone Lake, Summers County(JP) in December and February. **Pied-billed** and **Horned grebes** were present in Wood(MBC) and Summers(JP) counties during most of the period. **Horned Grebes** were seen in Pleasants County(WA) and Wetzel County(JF) after the middle of February. The **Red-necked Grebes** were first noted February 13 at Willow Island, Pleasants County(WA) and sometimes numbered as many as 28 at that site(MBC). They were also noted on the Kanawha River(WA) and the New River(JP) at Bluestone Lake. Jamie Fenske spotted 12 **Red-necked Grebes** on the Ohio River near Proctor, Wetzel County, on February 14 and 15. A **Double-crested Cormorant** was seen in early December in Pleasants(MBC) County and unusual was one on Mount Storm Lake, Grant County(JN) on January 25. They were also reported regularly along the Ohio River from Wheeling to Parkersburg(CS). **Great Blue Herons** were seen except during the worst weather and had begun to nest on Grape Island, Pleasants County, by the end of the period(MBC). A **Tundra Swan** was noted on the Kanawha River(AV), and two reporters found as many as a dozen **Mute Swans** on the Ohio River from Wood(MBC) to Cabell(WA) counties.



An Immature Double-crested Cormorant at Mount Storm Lake, Grant County, 3:15 p.m. on January 25, 1994. Photograph by John Northeimer.

A **White-fronted Goose** was at Glenwood, Cabell County(WA) on January 22. Two **Snow Geese** were seen in Cabell County on February 15 and four days later two were seen in Mason County(WA). A **Blue Snow Goose** was reported at Neal Island, Wood County(MBC) on January 2. Larger, open bodies of water contained **Canada Geese** all season. State wildlife personnel found over 7,000 **Canada Geese**, 6,500 **Mallards**, and 2,000 **American Black Ducks** on the lower Kanawha and adjacent Ohio River in January(AV). **Wood Ducks** were returning to most areas by the end of the period. A male **Green-winged Teal** was seen at Cedar Lakes, Jackson County, on February 20(HG), and one was present on the New River, Summers County, at about the same time(JP). Most of the usual wintering waterfowl were present but seemed to be spread over more of the region. There were reports for some of the less common species as well.

**Northern Pintails** were present in Wood County(MBC) and Kanawha County(HG) by the end of the period. A **Northern Shoveler** was seen near Milton, Cabell County, on December 19(WA), and one was seen on the New River, Summers County, in early February(JP). Six **Gadwall** were on a sewage lagoon near Princeton, Mercer County(JP) during February. Two were reported on the Pipestem, Summers County, Christmas Bird Count(JP). **American Wigeons** were found in Wood County(MBC) and Summers County(JP) in February. **Canvasbacks**, were reported during the winter in Barbour(KB), Mason, Cabell(WA), Fayette(AV), Wetzel(JF), and Wood(MBC) counties. **Redheads** were easily found on the New River, Summers County(JP). **Ring-necked Ducks** were found in Summers(JP), Wood(MBC), Fayette(AV) and Barbour(KB) counties. **Lesser Scaup** were found in Wetzel(JF), Wood(MBC), Kanawha(HG), Fayette(AV), Barbour(KB), and Summers(JP) counties. **Greater Scaup** were noted in Summers(JP) and Wood(MBC) counties. Two **Black Scoters** were reported from Kanawha Falls, Fayette County, on February 6(HG). A **Surf Scoter** was reported for the Parkersburg, Wood County(MBC) Christmas Bird Count and two were seen on the Kanawha River, Fayette County(WA) on February 20. A **White-winged Scoter** was seen at Glenwood Swamp, Cabell County(WA) from February 18 through the end of the period. **Common Goldeneyes** and **Buffleheads** were present but not as numerous on the New River in Summers County(JP). They were found regularly further down stream on the New, Kanawha, and Ohio rivers(HG, WA, MBC, AV) and near Proctor, Wetzel County(JF) in February. **Hooded Mergansers** were found in Tucker(JN), Fayette(AV), Summers(JP), and Wood(MBC) counties. **Common Mergansers** were reported from Wood(MBC), Mason(WA), and Summers(JP) counties. **Red-breasted Mergansers** were reported in Summers(JP) and Wetzel(JF) counties.

**Vultures through owls**—**Black Vultures** were seen in December in Summers(JP), Raleigh(DS), and Greenbrier(JM) counties. The Lewisburg Christmas Bird Count recorded a record 182 **Black Vultures**. **Turkey Vultures** were found on Christmas Bird Counts in Summers(JP), Raleigh(DS), and Tucker(JN) counties and had returned to most of the region by the end of the period. **Bald Eagles** were reported along the Ohio River



from the Northern Panhandle(CS) to Wood(MBC), Mason, and Cabell(WA) counties. Wendell Arbagrite distinguished at least three individuals—three first year birds and one adult. Allegheny Vistas reported a juvenile on the Elk River near Charleston, Kanawha County; three along the South Branch near Petersburg, Grant County; and one near Helvetia, Randolph County. An adult was seen on Bluestone Lake, Summers County, during the Pipestem Christmas Bird Count(JP). Allegheny Vistas reported an increase of **Northern Harriers** in the upper Kanawha Valley, three were seen on the Lewisburg Christmas Bird Count(JM), and one was reported in Preston County(JJ). The large concentrations of songbirds at feeding stations brought in more **Sharp-shinned** and **Cooper's hawks**. John Northeimer noted a **Red-shouldered Hawk** feeding on a deer carcass with a flock of crows in Canaan Valley, Tucker County. Ralph Bell noted a record 56 **Red-tailed Hawks** on the Clarksville, Pennsylvania, Christmas Bird Count. Wintering **Rough-legged Hawks** were found along the Kanawha River(AV) and in Canaan Valley(JN). There were two reports of **Golden Eagles** in Pocahontas County and one in Braxton County(AV).

A **Ring-necked Pheasant** was present in Doddridge County for a couple of days(JW). **Ruffed Grouse** and **Wild Turkeys** may have been impacted by the ice and



A Red-necked Grebe photographed on the Ohio River near Willow Island, Pleasants County, by Wendell Arbagrite on February 15, 1994.

snow. The one **Northern Bobwhite** on the Lewisburg Christmas Bird Count was the only one mentioned in the region(JM). Large numbers of gulls wintered on the state's waterways. Most were **Ring-billed** and **Herring gulls** but there were a few **Bonaparte's Gulls** along the Ohio River, Cabell County(WA) and there was a **Common Tern** with the gulls on the New River near the West Virginia/Virginia line(JB). **Eastern Screech-Owls** were found in Summers(JP), Raleigh(DS), and Wood(MBC) counties. **Great Horned Owls** were found in Kanawha(HG) and Summers(JP) counties. **Barred Owls** were reported over most of the region. Unusual was a young male **Ruby-throated Hummingbird** seen in Caldwell, Ohio, until Christmas Day(MBC).

**Woodpeckers through Grosbeaks**—Most of the woodpeckers seemed to be in good shape. The only report of **Red-headed Woodpeckers** came from Wood County(MBC). **Horned Larks** were found in Canaan Valley(JN) and the Lewisburg area of Greenbrier County(JM). **Eastern Phoebe**s were found in Raleigh(DS) and Summers(JP) counties. Two large roosts of **American Crows** were mentioned. The Tucker County(JN) roost contained more than 6,000 birds and the Raleigh County roost contained nearly 22,000 birds(DS). **Common Ravens** were reported for Summers, Mercer(JP), Raleigh(DS), Fayette(AV), and Tucker(JN) counties. Most of the mixed winter flock seemed to make it through the winter. **Red-breasted Nuthatches** and **Winter Wrens** were evident in most areas. **Brown Creepers** were mentioned by several reporters as feeder visitors. The **Carolina Wren** may have suffered in the northern part of the region. Two **Marsh Wrens** were present in Pipestem, Summers County, in December(JP).

Most unusual was a **Blue-gray Gnatcatcher** seen near Bluestone Dam, Summers County, in Mid-December before the rough weather appeared(MH,JB). Both **kinglets** were in pretty good numbers and **Cedar Waxwings** were fairly common. A few **Yellow-rumped Warblers** were found in the region. **American Tree Sparrows** were noted in Summers(JP), Greenbrier(JM), Kanawha(HG), Wood(MBC), and Ritchie(VC) counties. There were scattered reports of **Chipping** and **Field Sparrows**. **Fox Sparrows** were frequent visitors to feeders. A few **Swamp Sparrows** were in the region. **White-throated Sparrows** and **Dark-eyed Juncos** were especially numerous and there were more than the usual number of reports for **White-crowned Sparrows**. Five **Snow Buntings** were seen in Mason County around Christmas time(WA).

A few **Red-winged Blackbirds** and **Common Grackles** made use of feeders. The only **Rusty Blackbirds** were in Wood County(MBC). **Purple Finches** were present in good numbers. **Common Redpolls**, numbering from one to a dozen were seen in Summers(JP), Greenbrier(JM), Mason(WA), Wood(MBC), Tucker(JN), Preston(JJ), Morgan(ST), Monroe(BA), and Ohio(BBC) counties. A **Hoary Redpoll** was present in Mason County on December 21(WA). Several areas were visited by **Pine Siskins** and **American Goldfinches** were especially numerous at most feeders. Most areas had frequent visits from **Evening Grosbeaks**. These birds were in the Pipestem area, Summers County(JP) throughout the period. Sixty-five to seventy visited feeders daily!

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## Book Reviews

**Hollows, Peepers, and Highlanders: An Appalachian Mountain Ecology** by George Constantz. 1994. Mountain Press Publishing Co., Missoula, Montana. 273 pp. 31 pen-and-ink drawings. \$14 paperback.

*Hollows, Peepers, and Highlanders* is a collection of 30 "narratives and essays," which is a celebration of Appalachia's ecological diversity and mystery. The book is organized into three sections, the first on the geological origins of Appalachia and the evolution of the species found there. The second section, "The Players," features the fascinating adaptations of species to the Appalachian environment, and the third section takes readers through an Appalachian year. There is so much information and absorbing philosophy presented in this book that I can't resist quoting sentences from different chapters to give the reader a taste.

"Northern Appalachia is both ecologically younger and biologically less diverse than more southerly zones...Birds have speciated more slowly than salamanders in part because flight thwarts reproductive isolation...because of their reproductive isolation, the West Virginia [snowshoe] hares may be on their way to becoming a new species...The hallmark of Appalachia, however, is that many species exist at each site...The mixed mesophytic forest of central Appalachia supports a marvelous diversity of tree species."

"The forests of eastern Asia and southern Appalachia are so similar that if you were swept from one to the other you would be hard pressed to tell them apart...This involves more than 50 genera of Appalachian plants...There are only two species of tulip poplar, one in China and one in the United States...some animal distributions are also disjunct, e.g., copperhead, paddlefish, hellbender, and alligator...Today, eastern Asia is the foremost center of remnants from the widespread ancestral plant community that covered the northern hemisphere; eastern North America is second, featuring roughly half as many tree species from the ancestral community..."

"In natural populations of jack-in-the-pulpit, individuals change sex frequently...for beneath the twinkling pageant [of fireflies] is a society of liars and cannibals...the tessellated darter has intrigued me for several years, especially after I observed in them an unusual behavior among animals: males caring for eggs that were fertilized by other males...When not traveling, box turtles rest in forms, depressions made in vegetation and the top inch of soil...A turtle may meander up to 70 yards per day, or he may move just a foot or two before making a new form for the night...Adult copperheads typically consume only eight meals per growing season..."

"During the Pleistocene...the southern Appalachians sustained 90 species of [large-bodied] mammals, more than any other area of eastern North America. North American

plants such as Kentucky coffee tree, Osage orange, and paw paw that produce large seeds seem out of ecological context as no animals currently eat and pass their seeds. This incongruity suggests that recently extinct, large-bodied herbivores dispersed their seeds..."

"The songs of dozens of male birds simultaneously advertising their territories comprise the dawn chorus...Most birds sing in the morning when there is little wind or convection. Calls voiced then broadcast up to 20 times farther than songs of equal amplitude broadcast at midday...Like light, sound can be blocked, deflected, or absorbed to create a sound shadow..."

"What is the fate of Appalachia?...What will happen to our cove forests, lungless salamanders, dawn choruses, and, yes, even our copperheads?...Throughout the world, habitat fragmentation is one of the most serious causes of the present extinction crisis..."

Dr. Constantz, founder of Pine Cabin Run Ecological Laboratory in the West Virginia Eastern Panhandle, is a zoologist, naturalist, and teacher among several other occupations. Presently, he coordinates the West Virginia Watershed Conservation and Management Program.

This is a handbook of ecological hardship, humor, horror—and some hope. It is a book that you want to keep dipping into—and then, seduced by the facts, keep on reading.

Mary Moore Rieffenberger

**The Birder's Sourcebook** by Sheila Buff. 1994. Lyons and Burford, New York. 189 pp., \$13.95 paperback.

*The Birder's Sourcebook* contains seven chapters: "Where to Birdwatch," "Travel Information for Birders," "Birders on Tour," "Organizations for Birders," "Optics for Birders," "The Educated Birder," and "Books, Software, and Beyond." Appendices list the American Birding Association's code of ethics, birding hotlines, and state birds. Addresses and phone numbers for National Parks, Wildlife Refuges, Wildlife and Tourism Offices for states, Canadian provinces, and many countries are provided in the first two chapters. Chapter 3 lists addresses and phone numbers of birding tour operators and lists special birding events. "Organizations for Birders" includes a partial list of Audubon Societies and state birding clubs, although none are listed for West Virginia. The Brooks Bird Club is listed as a nationwide organization and so does not appear under "State Organizations."

Many providers of binoculars, optical repair, and sound equipment are given in the chapter, "Optics for Birders." Chapter six offers information on courses, zoos, and

museums. Book stores, book clubs, ornithological libraries, and periodicals are listed in the last chapter. Bird watchers will find a great deal of hard-to-find information in this handy reference book.

**Crows and Jays: A Guide to the Crows, Jays and Magpies of the World** by Steve Madge and Hilary Burn. 1994. Houghton Mifflin Co., New York. xxiii and 191 pp., 30 color plates, bibliography, and index. \$40.

This is the latest in Houghton Mifflin's series of international bird guides, which is preceded by guides to seabirds and shorebirds. This guide covers 120 species of crows, jays, magpies, nut crackers, treepies, ground jays, choughs, and jackdaws. The 30 color plates by Hilary Burn are each faced with brief captions and species range maps. Species accounts by Steve Madge include description, identification techniques, plumages, measurements, geographical variation and races, voice, habits, breeding data, habitat, distribution, status, and references.

The species accounts are interesting and extensive, although the print is small to save space. The color plates are attractive and seem to clearly illustrate the differential characteristics of the various species. Although many of the birds discussed in the guide are well known to birders and ornithologists, the majority of the world's corvids are largely unknown, and at least 20 species are endangered. *Crows and Jays* is an interesting, comprehensive reference to the family.

**And No Birds Sing** by Mark Jaffe. 1994. Simon and Schuster, New York. 283 pp., 16 black-and-white plates. \$23 hardcover.

The island of Guam lies 3,000 miles west of Hawaii and 1,500 miles east of the Philippines. At 212 square miles, the island is about 30 miles long and four to eight and a half miles wide. As early as the 1960s islanders began to notice a decline in native bird populations, the Bridled White-eye, Guam Broadbill, and Guam Rail among them. Eight species of forest birds disappeared from the island over the next two decades. Three still exist on other islands but the Bridled White-eye and the Rufous-fronted Fantail are now extinct. The Guam Rail exists in captivity and has been transplanted to Rota, an island north of Guam. The Micronesian Kingfisher lives only in captivity. Several other species are threatened.

The decline in bird populations began in the south and spread rapidly to the north. After eliminating all the usual suspects in island extinctions, such as disease, pesticides, introduced species, or loss of habitat, a young biologist, Julie Savidge, found the culprit, the introduced Brown Tree Snake. Eventually biologists found that the snake had built

up extraordinary populations as high as 12,000 snakes per square mile. The Brown Tree Snake, a highly capable climber, caused wide-spread power outages by shorting out powerlines on the poles it scaled. It eats birds, lizards, and small mammals, and large specimens have attacked babies in their cribs. Hungry Brown Tree Snakes have been known to take chicken off an unguarded barbecue grill, and spare ribs were found in the stomach of one trapped individual, a very unsnake-like dietary item.

The difficult search for the cause of Guam's bird extinction—the blind alleys, the scientific rivalries and conflicts, the ingenious solutions to difficult problems, made in spite of the difficulties involved in working on a remote island with meager funds—makes a fascinating story. It is well told by Mark Jaffe, who writes on the environment for the *Philadelphia Inquirer*. Jaffe spent two years in research for the book.

Jaffe also tells about the transplanting of the Guam Rail to Rota and ponders the frightening possibility of further transport of the Brown Tree Snake to the Hawaiian Islands and other Pacific islands. Like Kudzu in the American South and the Zebra Mussel in the Great Lakes, the invasion of Guam by the Brown Tree Snake is an example of how the human-mediated introduction of an exotic species can have terrible environmental consequences.

**Shadowbirds: A Quest for Rails** by William Burt. 1994. Lyons and Burford, Pub. 172 pp., 17 black-and-white photographs, 8 color plates, \$25 hardcover.

In what is more than a photographers' journal, but not a scientific discussion of rail ecology, William Burt describes his pursuit of Black Rails in Maryland and Connecticut and Yellow Rails in North Dakota, Minnesota, and Manitoba. Rails, especially the elusive, shy Black Rail and Yellow Rail, are notoriously difficult to observe and nearly impossible to photograph well. Burt succeeds in his photographic quest as a result of stubborn persistence and brilliant application of his talent for field photography. The results are the especially vivid color and black-and-white photographs of rails and other wetland birds and their habitat presented in *Shadowbirds*.

Burt conveys the sense of excitement that accompanies his successful trips and the bitter disappointment that more often nags the efforts of those who seek rails in their marshland homes. One also gains some knowledge of the oologists who hunted rail eggs in wetlands, places often gone now, or so diminished that one no longer hears the *tick-tick-tick*, *tick-tick* calls of Yellow Rails or the *de-de-drr* of a Black Rail on June nights.

But if you are interested in detailed discussion of rail biology, this is not the book for you. Burt disavows any interest in science ("...my distaste for the scientific way of seeing things is definite.") He is interested only in facts that will help him find birds and

their nests. A more interesting book may have resulted had Burt used his manifest writing talent to educate readers on the biology of his elusive subjects. Still *Shadowbirds* is an entertaining story of his quest for trophy photographs.

A. R. Buckelew Jr.