

A *PODICEPS* PRIMER

by Matthew L. Pelikan

Wintertime grebes lack charisma. They swim like logs and fly like windup toys. Their spectacular courtship choreography is months and hundreds of miles away. In dull winter plumage, even an Eared Grebe has a sort of check-it-off, go-warm-up-in-the-car quality. The marine habits of wintering grebes make close observation difficult. But bizarre life histories and intriguing behavior make *Podiceps* grebes appealing—once you get acquainted.

Horned (in Europe known as Slavonia), Eared (i.e., Black-necked), and Red-necked grebes share similar characteristics. Stubby wings, dense bodies, and rear-mounted feet make them more deft in water than on land or in flight. They breed mostly on shallow, weedy ponds well to the north. Sometimes isolated, sometimes colonial, their floating nests are attached to vegetation. During fall migration, grebes group at staging areas, then disperse to winter on lakes and sea coasts. Their opportunistic diet comprises invertebrates and fish, the latter more important in winter. All these grebes display considerable variability in appearance and behavior. But each species shapes this basic pattern into a unique form.

The species of most interest to Massachusetts birders is the Eared Grebe (*Podiceps nigricollis*). Many readers no doubt enjoyed the very active Eared Grebe on Cape Ann during February 1994. Birders who missed the show should not despair: this species is a rare but nearly annual visitor with about thirty state records (Veit and Petersen 1993).

Reasonably, but without explanation, Harrison (1985) ascribes east-coast Eared Grebes to the North American subspecies (one of four worldwide), *P. n. californicus*. A study of banding recoveries showed Eared Grebes from the northeastern part of their North American range migrating south and east toward the Gulf of Mexico (Jehl and Yocum 1986); however, one bird banded in Saskatchewan turned up at Niagara Falls, on a route that would take it roughly to New York City.

But grebes can really travel (a Red-necked Grebe has turned up in Hawaii [Pile 1988]); and because Eared Grebe races can theoretically be separated in the field, birders experienced with this species might try to test Harrison's assumption. *P. n. californicus* differs from the nominate European race in having dusky, not white, inner primaries, a longer bill, and a shorter wing (Cramp 1977).

Most birders confront more fundamental identification problems. Whoever first noticed the Cape Ann bird is guilty of a nice bit of birding. Eared Grebes in basic plumage could easily be missed among the common Horned Grebes (*P. auritus*) that stud our coast each winter. But most experts agree that, with care,

the two species are safely distinguishable in the field.

Associating with a small group of Horned Grebes, the Cape Ann bird facilitated direct comparison between the two species. The Eared Grebe was marginally smaller; its head, neck, and beak were strikingly so (my impression was of a misfit between head and body). It carried its neck with more curvature, a trait that Cramp (1977) considers reliable. Its beak had, as one author puts it, ". . . a straight or even concave culmen and a distinctly angulated lower mandible . . ." (Johnsgard 1987). Shape alone often distinguishes the two species under consideration, especially when direct comparison is possible.

The Eared and Horned grebes share a general pattern of coloration, with gray backs and light underpart. The Cape Ann Eared Grebe was typical in having a dusky throat and a triangular gray patch on the face. The effect that results—white areas at the chin and nape, separated by a point of gray—is markedly different from the white face and clearly defined, dark cap on basic plumage Horned Grebes. The face of a Horned Grebe, however, can look dusky under certain conditions: worn plumage, poor light, intermediate molt state (this species has a dark face in alternate plumage), or juvenile birds. Nonetheless, plumage characteristics, especially in the dead of winter, when intermediate molt states are not a problem, are diagnostic.

Structure differences make confusion of Eared and Red-necked grebes (*P. grisegena*) unlikely, but in winter both species do show gray-and-white patterns on the face. Red-necked Grebes generally show a white crescent behind a pale gray face, a surprisingly distinct field mark until it merges with the white face of alternate plumage. First-year Red-necked Grebes may have a wholly gray face, but they will lack the Eared Grebe's white on the chin and nape. If a bird looks like it could be either a Red-necked or an Eared, you are not seeing it well enough to justify calling it the rarer species.

Summer plumages of *Podiceps* grebes pose fewer problems than winter ones, but with only three summer Eared Grebe records (Veit and Petersen 1993) Massachusetts birders rarely get to exploit the fact. Alternate plumage Eared Grebes have very dark necks and short ear tufts (forming "ears") rather than long ones (forming "horns"); their foreheads rise steeply from the base of the upturned bill, whereas Horned Grebe heads appear much flatter. To me, an Eared Grebe's structure seems accentuated by summer plumage.

Even more than its relatives, *P. nigricollis* is bound to a distinct migration pattern. As the breeding season winds down, Eared Grebes descend in prodigious numbers on a limited number of staging sites. One staging site is Mono Lake, California, where about 750,000 birds converge as the autumn begins. Then a phenomenon occurs that Gaunt et al. (1990) document. Feeding on brine shrimp, the grebes double in weight. Shedding all their primaries at once, the birds lose the capacity to fly; unused, their flight muscles atrophy to a fraction of their former bulk.

Declining food supplies in late autumn prompt more physiological changes in the Eared Grebes. They burn up most of the 200 or more grams of fat they have stored, and as their feathers grow back the grebes begin to perform flapping exercises. On a regimen of three to ten bursts of flapping totaling five minutes a day (Gaunt et al. 1990), the birds completely restore their flight muscles in a couple of weeks and then take wing for their wintering grounds. This rapid loss and gain of muscle mass seems to be without precedent.

The mechanisms and especially the reasons behind this sequence of events have not been fully explained. But it is evident that Eared Grebes do not just use staging areas as convenient rest stops: their migration patterns and indeed their entire physiology have evolved around these rich food sources.

Their fondness for brine shrimp is not just seasonal: Eared Grebes eat more crustacea than do the other *Podiceps* species. Their preferred nesting sites feature muddy bottoms and rich vegetation, from which the grebes pick invertebrates. Of two dozen Eared Grebes observed at a North Dakota refuge in June 1994, all except one appeared to be feeding among dead cattail stubble inundated by high water. However, they have been observed picking insects out of the air, and their slightly upturned bills apparently work like an American Avocet's bill for sweeping food off the surface (Cramp 1977). These preferences may help explain why the Eared Grebe rarely turns up along the rocky and sandy Massachusetts coastline.

When I observed the Cape Ann Eared Grebe, it hopped fully into the air for each dive, plunging into the sea with astonishing zeal. The Horned Grebes with it dove much less dramatically. This behavior most emphatically is not an identification aid; Horned Grebes also sometimes leap. Cramp (1977) specifically mentions that *P. nigricollis* rarely does this, and jump-diving Eared Grebes merited a note (which I have not seen) in *British Birds* (Casselton 1986). But it occurred to me that this technique may be a way to get some momentum behind the dive: perhaps the Eared Grebe was diving deeper to reach a different food source, or perhaps heavy surf demands compensation for this bird's delicate build.

The unique foraging preferences of the Eared Grebe must often translate into distinct feeding behavior, and such differences might help an alert observer notice a bird that might otherwise be overlooked. If ten grebes dive one way and one grebe dives another, I would check that single bird twice.

However they dive, most grebes seen along the Massachusetts coast are Horned Grebes (*P. auritus*). Numbers of this species vary from day to day and year to year, but it is a rare winter trip to the coast that does not produce at least a few Horned Grebes, and sometimes they seem sprinkled every fifty yards along the entire shore.

North American Horned Grebes are said to be grayer and heavier than European ones. Cramp (1977) considers the variation clinal and lists no

subspecies; Harrison (1985) distinguishes the North American *P. a. cornutus* from the nominate European race. A winter Horned Grebe's white cheeks, contrasting with a black cap, and its chubby gray-and-white body are familiar fieldmarks; in really good light, the upperparts can have a faint chestnut cast even in winter.

But as with the other *Podiceps* grebes, a variable molt schedule can confront a field observer with a morass of late-winter identification puzzles. Some Horned Grebes begin to molt as early as late February (although rarely before, in my experience); some may retain basic plumage until the end of April, and one frequently sees different molt stages represented in a single telescope field. Birds in intermediate plumage can be singularly void of distinctive field marks, but structure, behavior, and of course probability provide useful clues.

Horned Grebes, especially in winter, rely more on small fish than do the other grebes, but this species eats invertebrates at all times of the year. The species' feeding behavior includes a range of tactics such as synchronized group feeding and dives that average about thirty seconds but can last as long as three minutes (Cramp 1977).

On an unseasonably warm day in February 1994, I ate lunch on a piece of driftwood high up on the beach at Plum Island and watched a Horned Grebe feed in a nearly calm sea. The grebe, probably in water no more than four feet deep, made repeated dives of around forty-five seconds, remaining on the surface ten or twelve seconds between dives. It quite regularly traversed fifty yards of coast, progressing about twenty feet with each dive. Once I got the hang of it, I could come close to pointing the spotting scope at where my lunch date would reappear.

The grebe's movements along the shore centered near where I was sitting, leading to a fanciful notion that it was curious about me. But I eventually realized the bird occupied a lagoon, its water azure against the yellow of the sandbar that formed its seaward wall. It would be easy to imagine waves losing their energy over this trough and dropping tiny fish or invertebrates that are being carried. The pattern of protracted dives and leisurely movement suggests that the bird was grazing on, rather than pursuing, its prey.

The bird's technique illustrates Cramp's assertion that the density and nature of food, and not depth, determines dive length (Cramp 1977). But further observations I made suggest that one other factor figures in as well. As a stroller approached along the beach, walking along the surf and passing the bird within about fifty feet, the grebe's dives shortened to thirty-five and then twenty-five seconds, and it remained longer on the surface between dives. Grebes, it seems, are smart enough to remain alert.

The other common *Podiceps* in Massachusetts is *P. grisegena*, the Red-necked Grebe. Red-necked Grebes are somewhat larger and more elongated than

the other grebe species. They generally ride low in the water, often looking like a neck sticking out of the sea, whereas the smaller *Podiceps* often hold their rumps high. (All three species, however, can adjust their buoyancy somewhat by trapping air in their feathers.) In any plumage, a Red-necked Grebe has a more robust head and bill than do its cousins. The American form, once known as Holboell's Grebe, is the larger of the two subspecies. It is also unique in having a distinctive, wholly grayish face on first-year birds (Cramp 1977). This bird is fairly common in winter, but is uneven in its distribution. I do not see it on every trip, and it seems like one sees either a single bird or a flock of thirty. Veit and Petersen (1993) point out that this species masses along our coast prior to migrating to the breeding grounds, at times yielding counts in the hundreds.

Such a flock offers a veritable catalog of grebes to study because the Red-necked Grebe is singularly irregular in its molt. Some birds begin molting in December, while a bird I saw near Cape May, New Jersey, retained its white facial crescent on May 14, 1994. It is possible to see basic and alternate plumages simultaneously (Cramp 1977). Alternate plumage, with its white face and rusty neck, is distinctive even in partial form—if you get a good look. But I find that a distant Red-necked Grebe can be a hard bird to identify, looking like a Horned Grebe one moment and some kind of loon the next.

Some peculiarities of the Red-necked Grebe, however, act to facilitate recognition. These birds are rather sluggish. A *Podiceps* that floats for several minutes without diving is likely to be a Red-necked Grebe. And Red-necked Grebes find sheltered water—bays and harbors—especially attractive; Newburyport, Folly Cove, Singing Beach, and Winthrop will generally yield a Red-necked Grebe or two in the winter, while the Horned Grebes are bobbing in more exposed water off Cape Ann or Plum Island.

But the secret to *Podiceps* identification resides in a sort of second tier of field marks. Although the bird was mostly in basic plumage, it had considerable red on its neck; the Horned Grebes I had seen that day were still in pure basic plumage. At about seventy-five yards, my scope revealed a yellow base on the bird's stocky bill, the color extending about halfway along the lower mandible (on some birds, this coloration is much more extensive). Both Horned and Eared grebes appear armed with little obsidian spikes. A distinct crest crowned the back of the head.

I saw the bird dive twice, once for a few seconds and then for over a minute. Periodically, it swam against the current briefly, then drifted, so as to stay in the same general area. But mostly, for the twenty minutes I watched it, it raked its bill through its threadbare wing feathers and basked in the anemic sun. These birds make winter look comfy.

It is fascinating that *Podiceps* grebes are at home both in weedy puddles and in crashing surf. Such versatility might be expected to make grebe populations safe. But Veit and Petersen (1993) show that the general trend is

toward smaller Horned Grebe counts in Massachusetts, and all three species, although still common, seem to be declining elsewhere as well.

One possible culprit, predictably, is pollution. Like all predators, grebes concentrate toxins that accumulate in the food chain. A study of Manitoba Red-necked Grebes found that elevated DDE and PCB levels cause a fourth of eggs laid to be unviable (de Smet 1987). de Smet (1987) cites other research showing that these results are probably typical for other populations. The Manitoba grebes also lost many eggs and chicks to raccoons, a species whose fondness for swamps and rapidly expanding range make it a formidable threat to wetland nesters.

For the near term, however, it is likely that *Podiceps* grebes will continue their inscrutable wintertime movements along the Massachusetts coast. Do not let their homely looks fool you: these species offer area birders a bright spot in a cold season.

References

- Blake, E.R. 1977. *Manual of Neotropical Birds*: Volume I. Chicago: University of Chicago Press.
- Casselton, P.J. 1986. Black-necked Grebes Jump-Diving, *British Birds* 79:337.
- Cramp, S. (ed). 1977. *Handbook of the Birds of Europe, the Middle East, and North Africa*, Volume I. Oxford: Oxford University Press.
- de Smet, K.D. 1987. Organochlorine and Reproductive Success of the Red-necked Grebe in Southern Manitoba, *Condor* 89:460-467.
- Gaunt, A.S., R.S. Hikida, J.R. Jehl, and L. Fenbert. 1990. Rapid Atrophy and Hypertrophy of an Avian Flight Muscle, *Auk* 107:650-658.
- Harrison, P. 1985. *Seabirds: An Identification Guide*. Boston: Houghton Mifflin.
- Jehl, J.R., Jr., and P.K. Yochem. 1986. Movements of Eared Grebes Indicated by Banding Recovery, *Journal of Field Ornithology* 79:208-212.
- Johnsgard, P.A. 1987. *Diving Birds of North America*. Lincoln, NE: University of Nebraska Press.
- Pile, R.I. 1988. First Hawaiian Record of *Podiceps grisegena*, *American Birds* 42:95-106.
- Veit, R.R., and W.R. Petersen. 1993. *Birds of Massachusetts*. Lincoln, MA: Massachusetts Audubon Society.

MATTHEW L. PELIKAN, who lives in Arlington, Massachusetts, is a freelance writer. He is the editor of *A Bird's Eye View*, a newsletter published by the American Birding Association for young birders.

FREE wild bird watering
tips pamphlet,
Happy Bird,
Box 86, Weston, MA
02193, Manufacturer
of Solar Sipper,
1-617-899-7804



OSPREY TOURS 1994-5
NATURAL HISTORY TRIPS

ESCORTED TOURS

BRAZIL - Sept. 1994
COSTA RICA - Jan. 1995
HONDURAS - Feb. 1995
PANAMA - Feb. 1995
GALAPAGOS/ECUADOR - Mar. 1995

GUIDED TOURS

"The Best of Costa Rica" Monthly Departures

P.O. Box 832, W. Tisbury
Martha's Vinyard, MA 02575
508-645-9049 Fax 508-645-3244

Buying a used VW?
Complete Pre-purchase
Evaluation
Golf - Jetta - Quantum
\$50.

(617) 923-0941
GTShop
Inc.

Formerly Coop Garage

We service Nissan, Honda,
Saab, Toyota, VW, Volvo

106 Pleasant Street
Watertown Square

Fall-Winter Workshops

SNEAKY, STREAKY BROWN JOBS

— a workshop on sparrows

Fall sparrows constitute one of the most challenging groups of birds regularly to confront Massachusetts birders. In large numbers, they occur seasonally in weed fields, gardens, and salt marshes, along woodland edges, and at bird feeders. Their conservative plumages and often furtive habits make them both a challenge to identify and a task to locate. Yet, their songs are among the richest in the bird world.

Workshop participants will be introduced to various facets of sparrow natural history, including habitat preferences, breeding behavior, status in Massachusetts, and both song and field recognition characteristics. A field trip to an area with a high sparrow density will provide direct field experience during the height of fall sparrow migration. Leader: **Wayne R. Petersen**.

Seminars: Friday, October 14, 1994 (7:30-9:30 P.M.).

Field Trip: Sunday, October 16, 1994.

Time and location will be announced at the seminar.

Cost: \$35

AUTUMN MARINERS

— a workshop on sea fowl and seabirds

The months of September through November witness huge movements of loons, grebes, gannets, cormorants, and sea ducks past the Massachusetts coast, while the offshore waters regularly host a variety of truly pelagic seabirds. The life styles, adaptations, and movements of these ocean travelers constitute some of the more spectacular examples in the avian world.

In this workshop, participants will be introduced to sea fowl and seabirds in the context of their environment, including how factors such as oceanography, geography, and weather interact to affect the lives of the birds. In addition, emphasis will be placed on field identification and on techniques for locating and viewing seabirds from shore. A coastal field trip will give students a chance to observe a variety of sea fowl and seabirds under field conditions. Leader: **Wayne R. Petersen**.

Seminar: Friday, October 28, 1994 (7:30-9:30 P.M.).

Field Trip: Saturday, November 5. All day. Cape Cod.

Cost: \$35.

RAPTORS IN WINTER

— a workshop on birds of prey

In midwinter, weeks after the last migrants of fall have passed through, a surprising variety of raptors can still be seen in Massachusetts in suitable habitats. In fact, the study of raptors in winter is often easier than at any other time of year. Sometimes as many as eight or ten species of hawks and owls can be encountered in a single day at this season.

This workshop will focus on the role of predators in the environment, the dynamics of predation, the adaptations that make raptors such efficient predators, and the status, distribution, and identification of winter raptors in Massachusetts. A field trip to a high density raptor area will give participants a chance to study winter raptors under field conditions. Leader: **Wayne R. Petersen**.

Seminar: Friday, January 20, 1995 (7:30-9:30 P.M.).

Field Trip: Sunday, January 22, 1995.

Time and location will be announced at the seminar.

Cost: \$35.

These workshops are cosponsored by *Bird Observer* and the Needham Bird Club.

Seminar sessions will be held in Needham, MA, from 7:30-9:30 P.M. Directions to the seminars will be sent to registrants. Details about the field trips will be announced at the seminars preceding them.

If you have questions, please call 617-666-8934 (evenings).

Workshops limited to 20 participants.

Preregistration is required.

TO REGISTER

Send your name, address, and phone numbers with your check (payable to *Bird Observer*) to Bird Observer Workshops, c/o H. D'Entremont, 45 Montrose Street, Somerville, MA 02143.

