

ABOUT THE COVER: IRRUPTIVE BIRD SPECIES

Editor's Note. The following account (containing a few changes approved by the author) and this month's cover portrait of irruptive species is reprinted from the *Peterson Field Guide to Ecology of Eastern Forests* (1988, New York: Houghton Mifflin Company), authored by John C. Kricher and illustrated by Gordon Morrison. Permission to use this account and the cover portrait from *Eastern Forests* was provided to *Bird Observer* by the Houghton Mifflin Company and by the author (Kricher) and illustrator (Morrison).

During fall and winter there are occasional large-scale movements of certain bird species into northern, central, and, occasionally, southern states. These dramatic mass movements, called irruptions, are unusual both because they involve large numbers of birds and because, unlike migration, they are not generally predictable. A given year may or may not witness the invasion of irruptive species. You can look in vain for crossbills, siskins, redpolls, and Snowy Owls for many years, only to be inundated by them without warning during a given winter. There is no local indication that an irruption will occur. The events setting off the mass movement occur far from the area where the birds eventually arrive. Irruptions involve bird species that nest in the northern states and/or Canada, which "erupt" from their nesting ranges and "irrupt" into more southern latitudes. Two general categories of irruptive species exist—seedeaters and raptors.

Seed-eating Irruptive Species

- Pine Grosbeak**—berries, ash and conifer seeds
- Evening Grosbeak**—conifer seeds, Box-elder and ash seeds, and sunflower seeds at bird feeders
- Purple Finch**—a generalist, feeding on many different seeds
- Red and White-winged crossbills**—conifer seeds
- Pine Siskin**—birch, alder seeds
- Common Redpoll**—birch and weed seeds
- Red-breasted Nuthatch**—pine/spruce seeds
- Black-capped Chickadee**—generalist seed-feeder; also feeds on arthropods. Irruptions only in northern part of its range.
- Boreal Chickadee**—conifer seeds; also arthropods
- Bohemian Waxwing**—berries, especially Mountain-ash (Rowanberry)

Irruptive Raptor Species

- Snowy Owl**—lemmings, voles, hares
- Great Gray Owl**—lemmings, voles, hares
- Northern Hawk-owl**—lemmings, voles, birds
- Northern Goshawk**—birds, hares, lemmings, voles
- Rough-legged Hawk**—hares, voles, lemmings
- Northern Shrike**—a passerine, not a raptor, but feeds on mice, small birds

The appearance of irruptive species is called a flight year, and flight years vary in degree of irruptiveness. In some years, a few Snowy Owls may invade the mid-central states, a poor irruption. Other years may bring many owls. Swirling flocks of Common Redpolls, often numbering hundreds of individuals, winter in weedy fields and birch clumps during a good flight year. Crossbills are particularly sporadic, often being absent for many years, only to invade in large numbers during a good flight year. Irruptive species generally move from north to south but may also move west to east. The Evening Grosbeak was originally not an eastern species, but moved eastward during flight years. Its range is now firmly established in the East.

Irruptions of bird species are thought to be caused by periodic unpredictable food shortages in the breeding ranges of these species. Seed-eating species may irrupt in years following the cessation of masting. Many young are produced when seeds abound during masting, producing an overpopulation. When seed crops drop precipitously (in a crash), seed-dependent species such as crossbills, Pine Grosbeaks, and Pine Siskins are forced southward. Irruptive raptors such as the Snowy Owl, Great Gray Owl, and Rough-legged Hawk are dependent on lemming populations, which are highly cyclic. The appearance of large numbers of individuals of these species signals a crash in the arctic lemming population. Not all individuals of the irruptive species leave the nesting areas, however. Irruptive flocks tend to be comprised predominantly of young birds. Of adults, females seem to outnumber males, though data are not well established on this point.

MEET OUR COVER ARTIST

For the second consecutive issue, Gordon Morrison's artwork appears on *Bird Observer's* cover. Gordon has been a writing and illustrating *Horticulture Magazine's* series, "Birds in the Garden," as well as a series on native American plant species. He hopes to write and illustrate a book similar to the "Birds in the Garden" series. He is also interested in working on children's books on nature-related topics. Gordon can be reached at 52 Bulfinch Street, North Attleboro, MA 02760.