

later 10 teal (*Anas* sp.) flew south low over the water, and an unidentified passerine was seen aboard. At 1450 a Common Egret and a very tired juvenile Barn Swallow (*Hirundo rustica*) alighted, and both stayed until dark when the latter was caught. Soon a Baltimore Oriole (*Icterus galbula*) was seen and spent an hour or so about the ship. From 1555 to dusk (11° N, 77° W) birds were commoner, with Common Egrets (28 individuals) predominating, all going south, as were two Black-bellied (*Squatarola squatarola*) or Golden Plovers (*Pluvialis dominica*). Birds which alighted were singles of Yellowthroat (*Geothlypis trichas*), Ovenbird (*Seiurus aurocapillus*), Yellow-throated Warbler (*Dendroica dominica*), Black-and-White Warbler (*Mniotilta varia*), Bank Swallow (*Riparia riparia*), and Barn Swallow. None of these birds appeared tired, and it seemed that intentionally or otherwise (having overshot Jamaica?), they were heading for Colombia. The fate of these birds is unknown, but some, including the Yellow-throated and Black-and-White warblers, had left by dusk, and all were missing on arrival at Panamá the following morning.

In a recent book based on collected specimens, de Schauensee (*The Birds of Colombia*, 1964) gives no record for Yellow-throated Warbler and only a single record for Ovenbird in Colombia. Excellent views of both these birds were obtained at ranges down to five feet, and there can be little possibility of error.

From 13 to 16 October we continued our voyage south to Guayaquil. The only land birds encountered were a Blackburnian Warbler (*Dendroica fusca*) and a Barn Swallow on the afternoon of 13 October, within sight of land about 50 miles north of Buenaventura.—MICHAEL P. HARRIS, *Edward Grey Institute of Field Ornithology, Oxford, England, 3 January 1966.*

Hunting Methods of Gyrfalcons and Behavior of Their Prey (Ptarmigan).—The hunting techniques of wild Gyrfalcons (*Falco rusticolus*) are poorly known even by people who have studied the species extensively. For example, Cade (*Univ. Cal. Publ. Zoöl.*, 63:232, 1960) saw Gyrfalcons pursuing prey only once in a five-year investigation in Alaska. Our combined observations in Alaska from 1961 through 1965 include 13 instances in which Gyrfalcons chased ptarmigan (Rock Ptarmigan, *Lagopus mutus*, and Willow Ptarmigan, *L. lagopus*) and eight other cases in which falcons were observed as they hunted in ptarmigan habitat. Observations were made near Eagle Summit (145° 30' W, 65° 30' N), in hilly country containing both arctic-alpine and boreal forest communities, and at Umiat (152° 08' W, 69° 30' N), in treeless, riparian habitats within the foothills section of the Alaskan low-arctic tundra. We will present our data and impressions under four general topics: (1) how Gyrfalcons look for prey, (2) how Gyrfalcons pursue ptarmigan they locate, (3) how ptarmigan try to escape detection, (4) how ptarmigan attempt to get away when chased by Gyrfalcons.

The hunting methods of Gyrfalcons we have seen can be divided into three types: (1) search from high over the terrain, (2) search in low flight, (3) low flight plus observation from temporary perches. Falcons sometimes used two or three techniques in succession; recognition of three categories seems justifiable because the method used to catch ptarmigan varied depending on where a falcon was when the prey was seen, and because ptarmigan reacted differently to falcons hunting in each of the three ways listed.

We saw Gyrfalcons hunting 500 to 1000 feet above the terrain four times in summer (with no snow on the ground) and four times in winter. The Gyrfalcons often were hard to see, especially when nearly in line with the sun, and we probably missed seeing falcons relatively often when they used this hunting method. The falcons usually progressed over the countryside by soaring in spirals without gaining or losing much altitude, occasionally flying in direct flap-and-glide flight for up to a mile between soaring periods. This flight pattern closely resembled that of Golden Eagles (*Aquila chrysaetos*).

Twice in summer and three times in winter we saw Gyrfalcons hunting 20 to 60 feet above the ground, apparently hoping to surprise and flush their prey ahead of them. Their flight was direct and rapid in most cases, although once the Gyrfalcon quartered back and forth until it flushed a family of Willow Ptarmigan. A common tactic was for the Gyrfalcon to hunt low over

one ridgetop, pass directly across an intervening valley, and begin hunting along the next crest. This method was also used by the male from a breeding pair in the coastal tundra habitat in the Kikuktok Mountains (about 165° 45' W, 61° 42' N) several times in June. This general method was used frequently by Golden Eagles when hunting marmots (*Marmota caligata*) at Eagle Summit and in the northern foothills of the Brooks Range. A person observing a Gyrfalcon quartering low over the terrain would be reminded of the common hunting behavior of Marsh Hawks (*Circus cyaneus*). It is our impression, however, that the falcons rarely hunted as slowly or thoroughly as harriers.

Gyrfalcons often landed on rocks, knolls, or small trees in the course of the low flights described above. At times it was obvious that the bird was not merely resting, but was actually searching for prey during these pauses. We saw this low-flight-and-perch technique used seven times, all but one being in winter. The method was similar to one used frequently by accipiters. The resemblance was especially striking in mid-October 1963 at Eagle Summit when Weeden observed a Goshawk (*Accipiter gentilis*) and a Gyrfalcon hunting ptarmigan in the same area on four successive days. Both raptors visited one brushy slope frequently because ptarmigan often fed there, and several times Weeden had to look closely to determine which hawk he was watching.

We saw Gyrfalcons catch three ptarmigan, all *L. mutus*; two were chicks and one was an adult male. The chicks were taken in the air just after being flushed by Weeden. In both cases the falcon apparently had stooped from a fairly high pitch, struck and held the young ptarmigan, and continued on with no detectable pause. The adult male was struck in the air 100 yards from where it had flushed just after a Gyrfalcon landed in a nearby tree. The falcon, beginning its flight from a point 50 feet higher than the ptarmigan, overtook its prey rapidly and hit it from behind and slightly above. The falcon carried the ptarmigan another 50 feet before landing in the snow with the dead bird in its talons. A companion of Weeden's found feathers from a ptarmigan that had been killed by a falcon 20 feet from where the ptarmigan flushed from the snow. This ptarmigan apparently was struck almost as soon as it got off the ground.

When Gyrfalcons missed ptarmigan on the first try, they often lost their advantage, at least momentarily, and were forced to pursue their prey in level flight, or give up the chase. One Gyrfalcon missed three short stoops at a Rock Ptarmigan during a 30-second downhill chase, then gave up when the ptarmigan flew rapidly uphill again. Several times we watched Gyrfalcons chase ptarmigan up to one-fourth mile, with the issue in doubt when the birds disappeared from view. On three occasions a Gyrfalcon landed and screamed loudly after missing a stoop.

On 13 August 1964 White watched an immature and an adult Gyrfalcon coursing low over flat tundra at Umiat, the young a few feet behind the adult. A Golden Plover (*Pluvialis dominica*) flushed under the lead falcon and was taken in a sideways grabbing motion by the second falcon. Both Gyrfalcons continued in direct flight, then began to circle upward, flying toward distant bluffs.

Ptarmigan are very much afraid of Gyrfalcons, and always show a strong reaction to the sight of this bird even when the falcon is far away. When a falcon is seen high over the terrain, ptarmigan become motionless, either immediately or after walking slowly to a bit of cover. The ptarmigan remain quiet, heads cocked toward the sky, until several minutes after the raptor is gone. If there are other ptarmigan present, female Rock Ptarmigan give a high, crooning alarm call when they see a Gyrfalcon. Adult males give a prolonged, soft, rattling or snoring call under the same circumstances. Weeden has successfully imitated both calls, causing ptarmigan to stop walking long enough to be captured in a net. On numerous occasions Weeden has learned of a Gyrfalcon's presence only when Rock Ptarmigan moving ahead of him suddenly stopped and looked skyward. When a Gyrfalcon flew over, White noted alarm calls of Willow Ptarmigan that seemed different from alarm calls used at other times, even at the sight of a Peregrine (*Falco peregrinus*). He also saw Willow Ptarmigan stretch and puff out their neck when a falcon was in sight. These same calls and behavioral reactions were seen in captive ptarmigan kept in outdoor cages at Umiat.

Ptarmigan also "freeze" when a Gyrfalcon alights near them. We have seen falcons perch close to ptarmigan at least four times, the falcons being unaware of the birds as long as they were motionless, even if the ptarmigan were not concealed by vegetation or rocks. In this situation, a ptarmigan that moves has a very short life expectancy.

If ptarmigan saw a Gyrfalcon hunting low to the ground when the raptor was far enough away to allow time for escape, they often flew ahead of the Gyrfalcon rather than remaining hidden. This was especially common in autumn when ptarmigan tend to fly more often and farther under any circumstances than in summer.

Ptarmigan being pursued by Gyrfalcons down a hill usually inclined sharply when they got to the foot of the slope, almost "bouncing" uphill, in an attempt to throw off the falcon. In level flight, the ptarmigan we observed either tried to evade the pursuing falcon by twisting and turning, or by dropping abruptly into dense thickets. Our general impression is that falcons and adult ptarmigan are so nearly of equal abilities in flight that unless the Gyrfalcon surprises a ptarmigan close at hand, or strikes it on the first stoop, the ptarmigan has a good chance of getting away. Perhaps hilly terrain, such as at Eagle Summit, helps ptarmigan evade Gyrfalcons under some circumstances.

A few comments on the reaction of ptarmigan to other raptors may be of interest. Rock Ptarmigan reacted toward soaring or low-flying Golden Eagles in about the same way they behaved toward Gyrfalcons, except that the ptarmigan took flight more often when an eagle was seen. Occasionally a lone ptarmigan flew above a soaring eagle, seemingly "escorting" it out of the area. Marsh Hawks and Short-eared Owls (*Asio flammeus*) elicited little response, except that ptarmigan sometimes flew a few yards when approached closely. Although Marsh Hawks were fairly common in areas in which Weeden worked, in nine years of study he saw only one case in which a Marsh Hawk killed an adult ptarmigan. Rock Ptarmigan rarely gave alarm calls when they saw these hawks. Pigeon Hawks (*Falco columbarius*) nested at Eagle Summit for at least five summers while Weeden was there, but were never seen to chase ptarmigan. Likewise, ptarmigan never acted alarmed when Pigeon Hawks were near. Willow Ptarmigan at Umiat seemed to distinguish between Peregrines and Gyrfalcons, as indicated by the intensity and variation in the alarm calls, while buteos, gulls and ravens tended to elicit similar responses that were slightly different than the responses elicited by falcons.—CLAYTON M. WHITE and ROBERT B. WEEDEN, *Museum of Natural History, University of Kansas, Lawrence, Kansas, and Alaska Department of Fish and Game, Fairbanks, Alaska, 3 January 1966.*

Eastern Phoebe in Utah.—The following records represent the first and second collected specimens of the Eastern Phoebe (*Sayornis phoebe*) in Utah. A lone bird, found "flycatching" over the Springdale Ponds, Springdale, Washington County, was secured on 27 March 1965. The specimen (located in the Zion National Park Museum collection, no. 1634) is an adult male in breeding plumage. The second Eastern Phoebe was taken at the same location, 17 December 1965. This specimen (ZNPM 1706) was quite fat (weight 20.5 g) and is a male (largest testis, 2×1 mm).

There are two previous sight records for the state. Dennis L. Carter and Allegra Collister observed a lone bird of this species in lower Zion Canyon, Zion National Park, Washington County, 21 October 1963 (Wauer and Carter, *Birds of Zion National Park and vicinity, Zion Nat. Hist. Assoc., 1965*). The author found another lone bird "flycatching" over a stock pond near the Lytle Ranch in Beaver Dam Wash (elev. 2900 feet), Washington County, 25 March 1965. I watched it for several minutes in good light.

The four Utah records suggest that the species is a rare migrant and winter visitor to southwestern Utah, particularly to the Virgin River Valley and its drainage. To the south in Arizona, Phillips, Marshall, and Monson (*Birds of Arizona, Univ. of Ariz. Press, p. 83, 1964*) regard it as a "Rare fall transient and winter visitor in southern Arizona, chiefly in the southeast but recorded west to the Colorado River." I could find no Nevada record in the literature, and in California it is regarded as "accidental" (AOU, *Check-list of North American Birds, p. 340, 1957*). The second specimen was taken while I was engaged in research supported by the National Science Foundation, Grant GB-4035.—ROLAND H. WAUER, *Zion National Park, Utah, 12 January 1966.*