CONTINENTAL BIRDLIFE

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A JOURNAL OF NORTH AMERICAN FIELD ORNITHOLOGY

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CONTENTS

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Cover photograph: A Wandering Tattler *Heteroscelus incanus* [to signal the fact that we're now wandering off into the sunset] on a wave-washed rock at Puerto Penasco, Sonora, Mexico. Photo by Robert A. Witzeman.

Flight Identification of Common North American Buteos

WILLIAM S. CLARK

photographs by the author
drawings by ROBERT PRATT

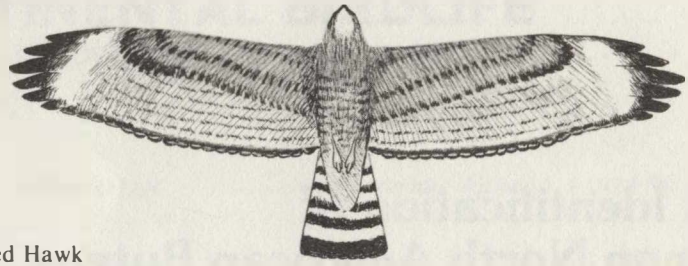
Accurate field identification of raptors is among the most difficult challenges facing the birder and field biologist today. This results mainly from the extreme plumage diversity within species and the variable wing shape during the different flight modes: flapping, soaring and gliding. The problem is compounded because available bird field guides do not have space to adequately treat each species and they fail to incorporate the most recently recognized or discovered field marks.

Most of us have learned to identify flying buteos through many hours of field observation, usually at one or, at most, several locations. We learned to distinguish buteos from other raptors by their flight silhouette and to identify species by a variety of field marks and characteristics, many of which are subjective and many others of which are peculiar to a specific site or flying condition (e.g., migration along a mountain ridge) (Amadon 1975). This article presents a simple system of field marks which will allow the beginner to identify most flying buteos when they can be seen well. Also presented will be additional information on buteos for the more advanced birder. Although not designed to replace methods used by advanced birders to identify buteos, this information can be used to verify identification.

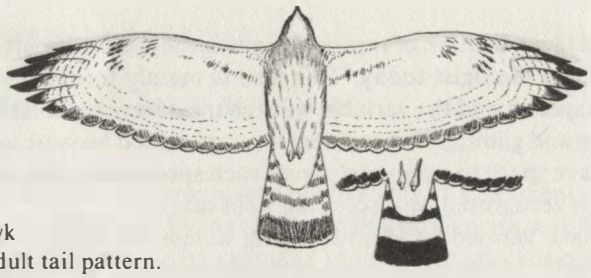
There are six species of North American buteos which occur over a considerable portion of the continent north of Mexico. All but one of these species has a "dark" color phase, along with a "light" or normal phase. In many, there are also many intermediate degrees between the two extremes.

The first section will be a brief description of the field marks which will enable one to identify flying buteos. The buteos are shown from the underside in Figures 1 and 2 with the pertinent field marks highlighted. Differences in the wing and tail shape among these buteos are depicted in these figures. Each buteo will also be discussed in more detail with comments on seasonal distribution. Special sections on Albinism, Behavior, Wing Panels and Head-On Profiles will round out the buteo descriptions.

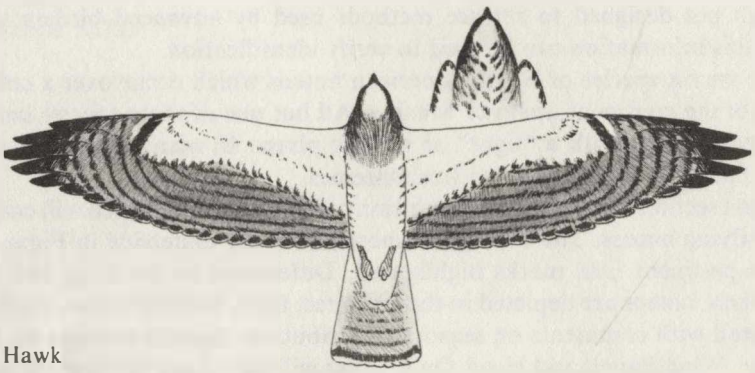
This is the first of a planned series on flight identification of North American raptors, in preparation for a raptor field guide. Most of the information presented was organized for teaching raptor identification as a part of the Raptor Information Center's Raptor Short Courses and has been field tested in most sections of North America north of the Mexican border.



Red-shouldered Hawk
Adult.

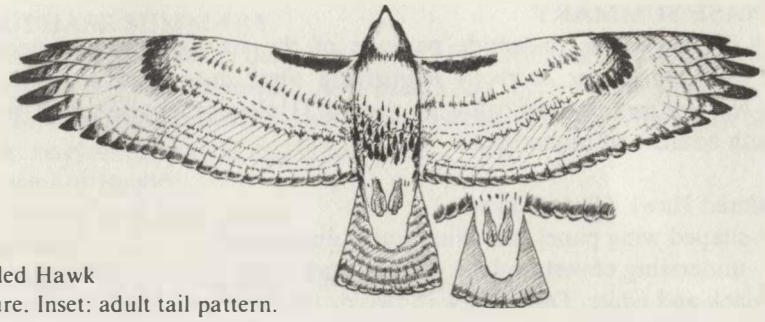


Broad-winged Hawk
Immature. Inset: adult tail pattern.

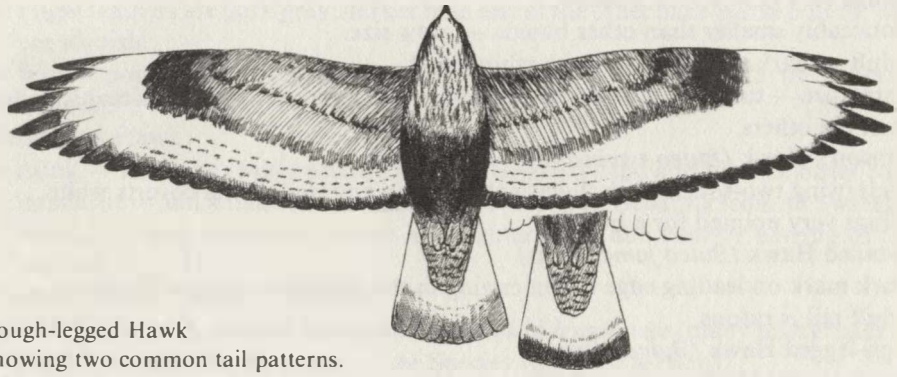


Swainson's Hawk
Adult. Inset: immature chest pattern.

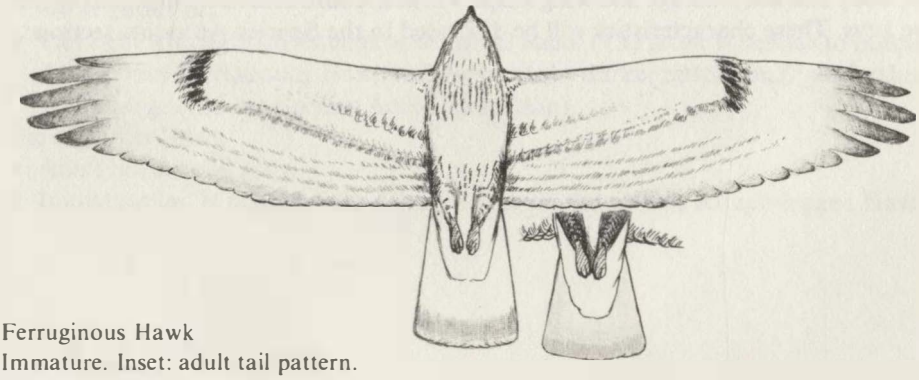
FIGURE 1.



Red-tailed Hawk
Immature. Inset: adult tail pattern.



Rough-legged Hawk
Showing two common tail patterns.



Ferruginous Hawk
Immature. Inset: adult tail pattern.

LIGHT-PHASE BUTEOS

LIGHT-PHASE SUMMARY

Figure 1 illustrates the underside patterns of the six light-phase buteos. *The diagnostic field marks for correctly identifying these buteos are mostly on the underwing and are summarized below by species:* (Unless otherwise noted, remarks apply to both adults and immatures.)

Red-shouldered Hawk *(Buteo lineatus)*
- Crescent-shaped wing panel (see Wing Panel discussion).
- Adult — underwing coverts rufous, darker than flight feathers, which are boldly barred black and white. Dark tail with two or more narrow white bands.
- Immature — underwing coverts and flight feathers whitish. Tail light brown with even width dark brown bars.

Broad-winged Hawk *(Buteo platypterus)*
- Lightish underwing with no distinguishing marks, except black border.
- Wings very pointed for a buteo.
- Noticeably smaller than other buteos — crow size.
- Adult — dark tail with one thick white band.
- Immature — tail light brown with dark bars, the subterminal bar noticeably wider than the others.

Swainson's Hawk *(Buteo swainsoni)*
- Underwing two-toned, with flight feathers gray and underwing coverts white.
- Wings very pointed for a buteo.

Red-tailed Hawk *(Buteo jamaicensis)*
- Dark mark on leading edge of underwing in the patagial area (see Figure 1).
- Adult tail is rufous.

Rough-legged Hawk *(Buteo lagopus)*
- Large square black patch at wrist.

Ferruginous Hawk *(Buteo regalis)*
- Black crescent at wrist, but no other *black* on the underwing.
- Patagial area clear or with *reddish* patches.

The body and tail plumage and wing shape will help confirm identification using the above keys. These characteristics will be discussed in the Species Accounts section.

DARK-PHASE SUMMARY

Figure 2 illustrates the underside patterns of dark-phase buteos. The wing patterns are very similar. *The important field marks for correct identification are located mostly in the tail and undertail covert areas,* but also include wing shape and pattern. The summary of these field marks follows.

Broad-winged Hawk

- Tail pattern as in light-phase.
- Wings very pointed for a buteo.
- Noticeably smaller than other buteos — crow size.

Swainson's Hawk

- Undertail coverts *light*, often barred (all other dark-phase buteos have dark undertail coverts).
- Undertail pattern as in light-phase, tail with dark subterminal band and many thin dark bands.
- Flight feathers are dark gray; darker than any of the other dark-phase buteos, which are whitish.
- Wing is pointed for a buteo (there is usually some whitish mottling in the underwing coverts).

Red-tailed Hawk

- Adult — tail red or pink, usually with subterminal band and hints of other bands.
- Immature — tail is light brown with dark brown bars. Separate from all Swainson's Hawks by dark undertail coverts and lighter color and heavier barring of flight feathers.

Harlan's Hawk *(Buteo j. harlani)*

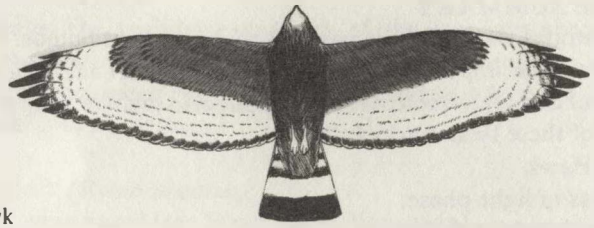
- Adult — whitish mottled tail feathers, streaked *lengthwise* (many intergrades with adult Red-tailed Hawk occur — see Species Accounts section).
- Immature — at present time indistinguishable from immature dark-phase Red-tailed Hawk.

Rough-legged Hawk

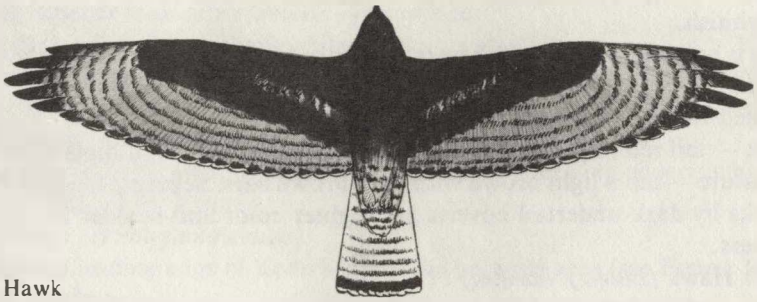
- Tail usually white at base with dark terminal band; may be dark with one to three white bands or . . .
- Tail light with darkish smudge as terminal band. (The latter is similar to immature dark-phase Ferruginous Hawk tail. Separate by darker border on flight feathers of Rough-leg. Also see Species Accounts section).

Ferruginous Hawk

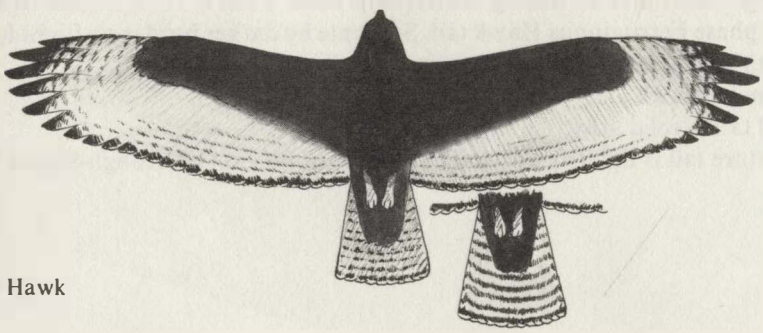
- Adult tail is solid gray.
- Immature tail is lightish with dark smudge on the tip (see Rough-legged Hawk).



Broad-winged Hawk
Adult.

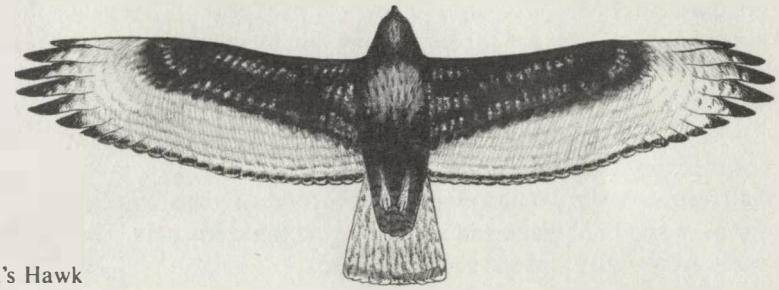


Swainson's Hawk
Adult.

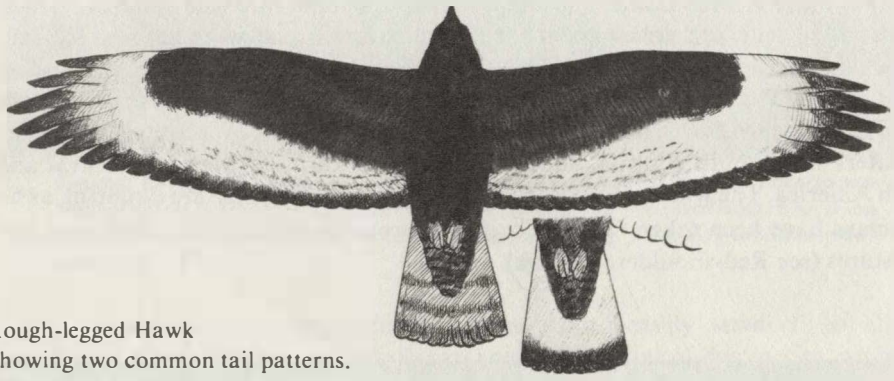


Red-tailed Hawk

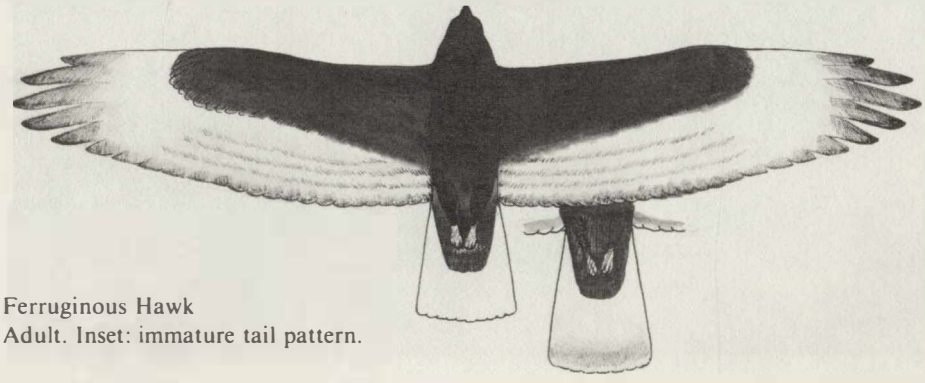
FIGURE 2.



Harlan's Hawk
Adult.



Rough-legged Hawk
Showing two common tail patterns.



Ferruginous Hawk
Adult. Inset: immature tail pattern.

DARK-PHASE BUTEOS

SPECIES ACCOUNTS

Red-shouldered Hawk: There are three recognizably different forms of this species. The nominate race *(Buteo l. lineatus)* and similar races *(B.l. alleni* and *B.l. texanus)* occupy all of North America east of the Great Plains, except the Florida Peninsula where the Florida race *(B.l. extimus)* occurs. There is a geographically distinct population of this species in California *(B.l. elegans).*

Adults of all forms are similar and all exhibit the reddish breast, black tail with four to seven white bars and bold black and white colored flight feathers. The Florida and California races are smaller and have grayish heads.

The immature plumage of all races is similar with heavily streaked breast and a dark brown tail with light brown bars. Use wing shape and plumage for field identification of these individuals.

Note that immature Red-shoulders and Broad-wings are not safely separated in the field by body plumage. It is necessary to see the underwing shape and pattern or the tail pattern for safe identification. The tail pattern of the immature Red-shoulder is light brown with even width dark bars, while the immature Broad-wing has a wider dark sub-terminal bar (Dunne *et al.* 1982).

Broad-winged Hawk: The Broad-wing is monotypic (in North America) and breeds throughout eastern North America occurring westward in the boreal forest to Alberta. It winters from south Florida, southern California through Mexico, Central and South America. The winter records from areas north of this range are doubtful, as no specimens have been taken. The majority are probably misidentified Red-shoulder immatures (see Red-shouldered Hawk).

Figure 3. Immature Broad-winged Hawk. Notice the relatively pointed wingtips, plain and pale underwing with darker tips and trailing edge, tail with several narrow bars and broader subterminal bar. Pattern of body plumage is variable.

Figure 4. Immature Swainson's Hawk. On this individual the streaking of the underparts is heaviest across the chest, suggesting the adult's pattern. The two-toned underwing is less apparent than on the adult, but notice the wing shape: long, narrowing toward a rather pointed tip.

The immature Broad-wing's breast varies from heavily streaked to almost immaculate white. There is a relatively rare melanistic phase of this species, probably occurring only in the western part of the breeding range.

Swainson's Hawk: The Swainson's Hawk is most unusual for a buteo as it retains immature plumage for two years (Fitzner 1980). This plumage is characterized by a streaked breast, with many individuals' patterns suggestive of the adults.

The Swainson's Hawk is a common breeding raptor in western North America in the proper habitat. It leaves North America in the winter, except for a small number of individuals wintering in south Florida (Browning 1974). It is recorded on migration in the eastern U.S. regularly (Clark 1974). There are strong doubts about the validity of winter sight records of this species in North America, although winter specimen records exist for Florida, south Texas and southern California (Browning 1974). Winter Swainson's Hawks should be photographed, captured and photographed, or, as a last resort, collected. All other records should be viewed skeptically.

Red-tailed Hawk: There are seven recognized races (five forms) of this species in North America north of the Mexican border (Taverner 1927 & 1936). In all forms, except the Harlan's Hawk, the Red-tail is recognized by the red tail of the adult. In most light-phase forms the breast is clear. In light-phase birds of all ages the "belly band" is mottled rather than solid color. However, the presence of the belly band is not sufficient for species identification (see under Ferruginous Hawk). The forms of the Red-tailed Hawk are:

- Eastern Red-tailed Hawk — *(B.j. borealis* and *B.j. umbrinus)* The Eastern Red-tail is relatively uniform and occurs only in the light-phase. The adult tail is red with a

thin subterminal band of black. These races occur east of the Great Plains from central Texas north to the Arctic. (*B.j. umbrinus* occurs only in peninsular Florida.) There is a large area of overlap with the Western Red-tail.

- Krider's Red-tailed Hawk — *(B.j. kriderii)* This form is characterized by being very light. No two individuals are alike. It is essentially a very light Eastern Red-tail. The breeding range is the eastern part of the Canadian and northern U.S. prairies (Taverner 1936).
- Western Red-tailed Hawk — *(B.j. calurus* and *B.j. alascensis)* Somewhat more variable in color, ranging from individuals similar to Eastern Red-tails to uniformly rufous ones (erythristic), to uniformly solid black (melanistic), and every intermediate degree. In *all* adult individuals, the tail is red with a thick dark subterminal band; in most individuals there are also many incomplete narrow bands. In some individuals there is only a hint of these bands and in others they are absent. This form occurs from the Great Plains to the west coast.
- Fuertes' Red-tailed Hawk — *(B.j. fuertesi)* This subspecies intergrades with the Western race in the southwestern United States. It appears similar to an Eastern Red-tailed Hawk except that it is paler in color below, the adult almost always with

Figure 5. Adult "Harlan's" Red-tailed Hawk. This form typically shows light mottling on the dark chest and underwing coverts.

Figure 6. Adult "Harlan's" Red-tailed Hawk. The distinctive tail pattern of this form, most apparent from the upperside, features black mottling and streaking arranged longitudinally on the whitish rectrices.

an incomplete or absent belly band.

- Harlan's Hawk — *(B.j. harlani)* This is a very unusual form which has been variously assigned as a race of the Red-tailed Hawk and as a separate species. Present studies are beginning to shed light on the true extent of its breeding and wintering range (Lavers 1975, Lowe 1978, Mindell 1983). Past studies of the plumages (Taverner 1927, Wood 1932) have been neglected by many field guide authors. These studies and Lowe's and Mindell's work have influenced the following discussion. The Harlan's Hawk is distinguished in the adult plumage by the white tail feathers, which are mottled longitudinally with black. Harlan's Hawk probably occurs only in the dark-phase. (Light-phase individuals are most likely intergrades with Western Red-tails). The dark body color is usually not solid, with most individuals having light patches or mottling, particularly on the chest and on the underwing coverts. The barring in the flight feathers is heavier than in the dark-phase Red-tail forms. The typical Harlan's body plumage base color is brownish-black, while most dark Red-tails are dark brown or reddish.

The Harlan's Hawk breeding range is mostly in Alaska, where it interbreeds extensively with Western Red-tails. In central to western Alaska only the Harlan's and Harlan's intergrades occur (Lowe 1978; Mindell 1983).

The main winter range of the Harlan's is in western Arkansas, southwestern Missouri, southern Kansas, Oklahoma, and northern Texas (Lowe 1978).

However, they have been found great distances from the area, both east and west (Lavers 1975, Mindell 1983). The photo shown is of an adult captured near Tucson, Arizona in early spring.

Figure 7. Rough-legged Hawk, in the dark phase. Some extreme dark-phase individuals have darker tails than the bird shown.

Rough-legged Hawk: The Rough-leg is a winter visitor all across North America south of the tundra where it breeds. It occurs in the dark phase more commonly than do the other buteos. The age and sex criteria are complex (Cade 1955), but in general the dark carpal patch (often discernible even in the dark phase) and tail pattern are sufficient for a proper field identification.

Figure 8. Immature Ferruginous Hawk, lacking the dark thigh feathering typical of adults. The underwing lacks any black in the patagial area or on the trailing edge. Notice the long, broad wings and tail, and the wide head.

Ferruginous Hawk: The Ferruginous is the largest of the North American buteos. In the adult light-phase plumage, the bird is mostly light colored with dark reddish leg feathers. The adult tail is usually solid white, pink or gray, but sometimes has gray or rufous edges to the feathers. There is no tail barring. The adult underwing

may have some chestnut patches on the coverts.

The dark phase is rather uncommon and is really a very dark brown. It differs from the other dark-phase buteos in that the rear border of the wing is not as dark. Unlike other buteos, there are no intermediates between light and dark-phases (Schmutz and Schmutz 1981).

The breeding range of this buteo takes in more arid steppe and prairie areas of western North America. Individuals move somewhat southward during the winter. It has been recorded, on occasion, in the eastern United States.

Figure 9. Partial albino Red-tailed Hawk.

ALBINISM & PARTIAL ALBINISM

These color aberrations, particularly the latter, are fairly common in the Red-tailed Hawk (Austing 1964, Clark 1967). Four white or partially white Red-tails were seen during the fall of 1978 at Hawk Mountain Sanctuary, Pennsylvania (Brett 1979, Personal Communication). The partial albinos are distinct from the Krider's Red-tail in that some feathers are normal and some are white (see photo). In the Krider's, the general coloration is lighter, but not as "checkerboard" as the partial albino. A few albinistic Red-shoulders have been reported (Austing 1964).

BEHAVIOR

Contrary to statements in a major field guide, four of the six species of buteos hover. The Rough-leg hovers regularly, but the Red-tail also hovers and kites (hovers

without wing flapping) when winds are strong (see Preston 1981 for a discussion of the relationship of wind and flight in the Red-tail). The Swainson's and Ferruginous Hawks also frequently hover. The Red-shoulder and Broad-wing have not been reported to hover.

The Red-shoulder can be confused with a large accipiter, as it will often fly with "three flaps and a sail." Flapping has been used to separate this species from Red-tails (Wander 1978).

HEAD-ON PROFILES

The Broad-wing and Red-shoulder show a level wing attitude when viewed head-on but the Red-shoulder wing in a glide may appear bowed because the wing tips are lowered and the wrist is raised (Dunne *et al.* 1982). The Red-tail usually glides with the wings slightly raised. The Swainson's soars and glides with its wings in a pronounced dihedral. The Ferruginous also soars and glides with a slight dihedral. The Rough-leg head-on gliding profile is somewhat gull-like, with the wrists held higher than the body and the wing tips usually level with the wrists.

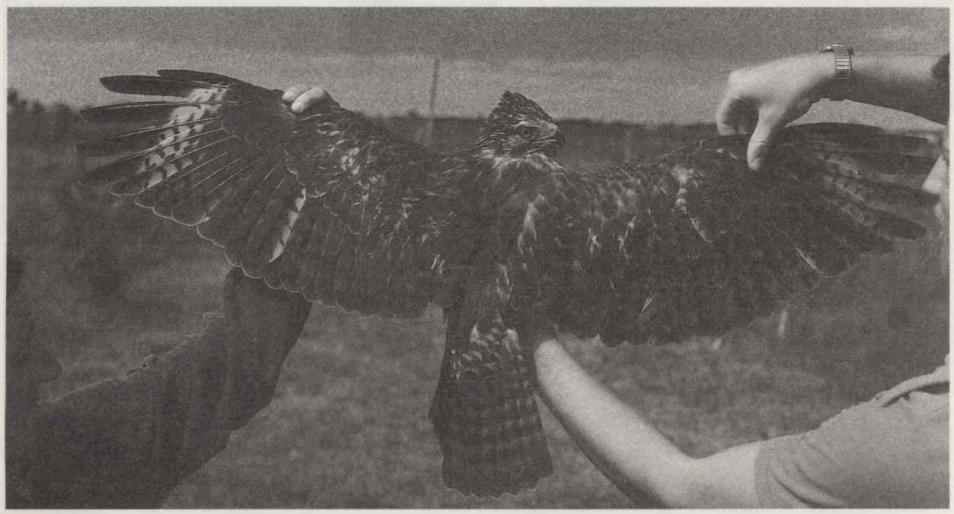


Figure 10. Immature Red-shouldered Hawk, showing the crescent-shaped "wing panel" formed by light areas near the bases of the outer primaries.

WING PANELS

The Red-shoulder's wing panels are the result of a light area on part of the upper surface of some of the primaries (see photo). The result is a *crescent shaped* light area visible from below which extends from the front of the wing to the rear. The Broad-wing and Red-tail can also show wing panels. However, these are usually restricted to the rear half of the wing and are trapezoidal in shape, not crescent shaped, as in the Red-shoulder. This author has seen two Red-tailed Hawks which had window panels as in the Red-shoulder, but they were properly identified by the presence of the dark patch in the patagial area.

The Ferruginous Hawk shows whitish on the upper surface of the wings near the tips because the inner web of each primary is whitish. The Rough-legged Hawk also shows this field mark, although the white is not usually as extensive, if present. Thus this is of limited value in field identification.

SUMMARY

Most individuals of the six buteo species that regularly occur throughout North America can readily be identified in flight by the beginning birder using the field marks presented in this paper. Light-phase buteos can be identified mainly by the *underwing pattern,* with the tail pattern and color, and wing shape as aids. Dark-phase buteos can be best identified using *tail pattern and color* and in some cases undertail coverts.

Additional information on plumage variation and geographic and temporal occurrences is presented to aid in field identification.

In spite of the general reliability of the field marks presented, some individuals will exhibit aberrant plumage or behavior and defy proper identification. Even the "expert" must learn to say "unknown buteo"!

ACKNOWLEDGMENTS

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Accepted 31 March 1982. Author's address: 9306 Arlington Blvd., Fairfax, VA 22030.

On the Field Identification of Yellow-green, Red-eyed, Philadelphia and Warbling vireos

SCOTT B. TERRILL
AND
LINDA S. TERRILL

Analysis in the field and in the museum suggests that some "standard" field marks must be approached with more caution

The family Vireonidae comprises approximately 40 species of small- and medium-sized, primarily insectivorous birds. Included in this family are the vireos *(Vireo)*, the shrike-vireos *(Vireolanius)*, and the greenlets *(Hylophilus)*. Of this group, only 13 species (all vireos) have occurred in North America. Five of these species lack conspicuous plumage characteristics such as wingbars, eye-rings or tail spots, but possess noticeable superciliary complexes. Included in this group are the "Yellow-green" Vireo *V. flavoviridus* or *V. olivaceus flavoviridis*, the Red-eyed Vireo *V. olivaceus*, Warbling Vireo *V. gilvus* and the Philadelphia Vireo *V. philadelphicus*.

Although the A.O.U. checklist (1957) and various authors (Godfrey 1966, Binford 1968, Oberholser 1974, Peterson 1980, et cetera) have treated *V. flavoviridis* as a separate species, many other authors have considered it conspecific with *V. o. olivaceus* (Mayr and Short 1970, Morony *et al.* 1975, de Schauensee and Phelps 1978, Garrett and Dunn 1981, et cetera). The forthcoming 6th Edition of the A.O.U. checklist will reportedly also treat it as conspecific. However, *olivaceus* and *flavoviridis* might best be considered as allopatrically breeding semispecies or as a superspecies (in the sense of Grant 1977).

A generalized summary of the distribution of these vireos is as follows. The Red-eyed Vireo "replaces" the Yellow-green Vireo in deciduous forests from central Texas across most of North America, excluding the southwestern United States, during the breeding season. The Yellow-green type is primarily a neotropical-subneotropical population, breeding from northern Sonora, Nuevo Leon, and

Tamaulipas south into Panama. Both types winter primarily in the Amazon Basin. The Philadelphia Vireo breeds in Canada west to central-eastern British Colombia, south to North Dakota, northern New Hampshire and Maine. The winter range is from Guatemala south to Panama and northwestern Colombia. The Warbling Vireo breeds across most of southern and western Canada south throughout the United States into northern Mexico (including Baja California) and winters from northern Mexico south into Guatemala and El Salvador.

Vagrant Yellow-green Vireos have reached California eleven times (McCaskie *et al.* 1979, Garrett and Dunn 1981) and even Canada (Godfrey 1966). The southern portion of the Rio Grande Valley might be considered the extreme northeasterly limit of the bird's normal range; however, it is quite rare as a breeder there. Additionally, there is a record for southwestern Texas (Oberholser 1974).

Red-eyed Vireos are rare transients only in the southwestern United States. Elsewhere in North America they are common migrants. Red-eyed Vireos have reached Europe (Bruun 1970).

Philadelphia Vireos are regular transients primarily in central and eastern North America. This species is a casual vagrant in the southwestern United States where, for example, it is a rare fall vagrant in California, Arizona and New Mexico (Garrett and Dunn 1981, McCaskie *et al.* 1979, Monson and Phillips 1981, Hubbard 1978), and a very rare spring vagrant in California (where there is also a mid-winter record).

Most of the potential for misidentification arises in the fall. All the vireos under discussion acquire alternate plumage via wear from the winter plumage, which in turn was acquired by a complete prebasic molt. The fresh fall plumage is brighter, especially the yellows and greens. The birds proceed to appear duller with wear through time. Additionally, birds in their first plumage after their complete post-natal molt can further increase identification difficulty due to plumage similarities not dealt with in the standard field guides.

In fall it is possible to run across very green and yellow Warbling Vireos. Sometimes these individuals also have a contrasting gray pileum and relatively bold superciliary complex. Therefore, confusion with both Red-eyed Vireos and Philadelphia Vireos is possible. This potential difficulty is further enhanced by individual variation among members of all three species.

Another potential identification problem arises when dealing with Yellow-green and Red-eyed types in the fall. It is this problem that will be dealt with first.

Adult Red-eyed Vireos have the most contrasting superciliary "complex" of the vireos lacking wingbars. The mouse-gray pileum contrasting with a whitish superciliary and separated from it by a thin blackish-gray line, the dark brownish-gray or blackish lores, and the dark post-ocular stripe all contribute to this effect. Of course, if the iris is reddish, this will eliminate all others but the Yellow-green Vireo. The facial pattern is further accentuated by a dark greenish-brown auricular area (which adds to the superciliary's distinctness). In general the upperparts are uniform greenish-brown to greenish-yellow, thus contrasting with the gray pileum. In the breeding season and spring, the underparts may be washed with greenish to dull yellow on the sides and flanks, often to brighter yellow on the undertail coverts on an otherwise dull white background.

It is often assumed that the upperparts of Yellow-green Vireos are more yellow than those of the Red-eyed Vireo. While this may be generally true, it is not without exception. Individuals from both populations with virtually identical upperparts

could be found in most collections examined (fig. 1). The shade of the upperparts should not be considered a reliable character in the identification of any of the species considered here, as considerable overlap occurs among all of them.

The pileum is usually duller in the Yellow-green Vireo (more greenish), than the darker gray of the Red-eyed Vireo. However, this character showed overlap between specimens of hatching-year Red-eyed Vireos and specimens of Yellow-green Vireos. Additionally, the eyeline of some young Red-eyes can be very dull (grayish) and the eyeline of Yellow-greens can approach the darkness of these birds. Thus, the duller head pattern often cited for the *flavoviridis* group is not always useful.

The yellowish wash on the underparts of some Red-eyed Vireos occupies an area nearly equal to that of some Yellow-green Vireos, being brightest on the sides (especially near the bend in the folded wing), flanks and crissum. In the fall, Red-eyes can appear much like the field guide rendition of Yellow-green Vireos (Peterson 1961, Robbins *et al.* 1966), and the statement in Peterson indicating that the yellow on the undertail coverts is an identifying characteristic is certainly misleading (Peterson 1961, p. 248).

It appears that there are several characters useful in separating these two large vireos: (1) The bill of the Yellow-green is almost always noticeably longer and deeper with a much more extensively pale mandible. (2) The shade of the yellow on the underparts. In *flavoviridis* this color is consistently a bright lemon or sulphur yellor. In *olivaceus* the yellow can be relatively bright and extensive, but the color tends toward a buffy or greenish yellow. (3) If the yellow wash extends across the breast, it is a Yellow-green (this does not, however, occur on all Yellow-greens). (4) If the yellow of the sides extends up onto the sides of the neck or face (even to the auriculars) the bird is a Yellow-green. This area is consistently greenish or greenish-gray in Red-eyes. (5) Finally, the edgings on the remiges are yellow in *flavoviridis* rather than greenish, grayish, or greenish-white in *olivaceus*. The inner and the outer webs of the rectrices are yellowish and the inner webs of the primaries and outer webs of the secondaries and tertials are emarginated with yellow in the Yellow-green Vireo. This often contributes greatly to the impression that the birds are brighter green in the upperparts than the Red-eyed. The yellow in the tail is especially noticeable from the underside, and should be used when identifying extralimital Yellow-green Vireos.

Warbling Vireos are portrayed in the field guides as drab uniform grayish vireos with little color or contrast anywhere in the feathering. Although Warbling Vireos can look like this, it is not a valid generalization. This species can be very green on the upperparts, even contrasting with a grayish pileum (especially in *V. g. swainsonii*, and *V. g. petrorus* [Oberholser]). This green area can be especially bright on the uppertail coverts. Warbling Vireos can also be very yellow on the underparts, especially on the undertail coverts, and although less frequently, on the sides and flanks, and very occasionally across most of the underparts. Some Warbling Vireos even appear to possess a relatively bold superciliary. Thus, there is potential for confusion with the other vireos generally considered to be more green and yellow than the Warbling.

Fall birds may present some confusion when comparing bright Warbling Vireos to hatching year Red-eyed Vireos. Warbling Vireos can appear large, greenish on the upperparts, yellowish on the underparts and grayish on the pileum. Although any dark on the lores is usually obscured or absent, Warbling Vireos can have mousey-gray or gray-brown lores. There is a lot of individual variation with respect to the post-ocular stripe, which can be relatively dark in some birds. Birds with the above

Figure 1: From left to right (1) *V. philadelphicus* imm. female, Calif. Ac. #40850, 3 Sept 1906, Lyons Cook Co., IL; (2) *V. gilvus swainsonii* male, Calif. Ac. #40867, 24 Sept 1903, Santa Monica Mts., Los Angeles Co., CA; (3) *V. olivaceus* male, Calif. Ac. #53451, Deerfield, Lake Co., n.e., IL, 13 Sept 1914; (4) *V. flavoviridis* male, Calif. Ac. #27842, 16 May 1925, Maria Madre, Mexico. Note that there is very little difference in the shade of the upperparts among all four vireos. The birds were photographed against a neutral gray background. The yellow edging in the rectrices is apparent in the Yellow-green Vireo.

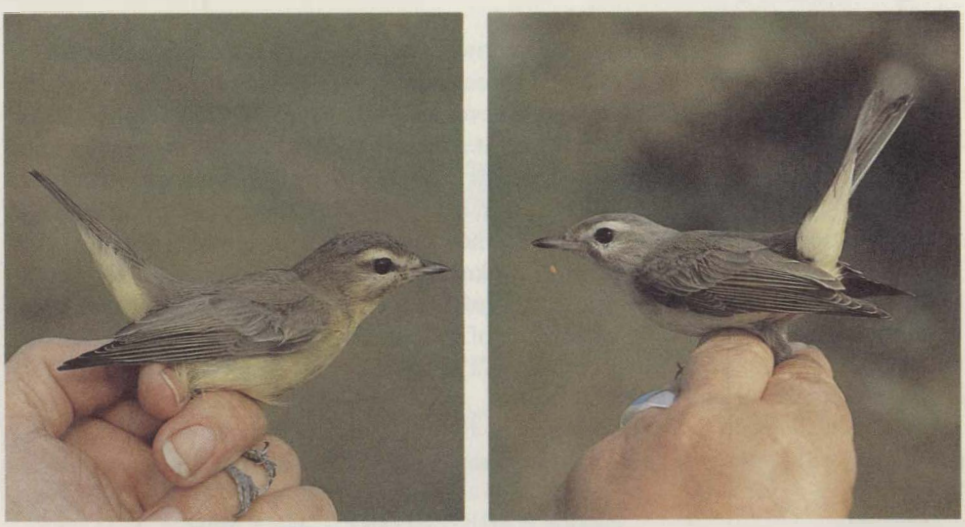

Figure 2: Hand-held Philadelphia (left) and Warbling (right) vireos. Note the generally stubbier appearance of the Philadelphia Vireo as a result of the relatively shorter bill and tail. Also note the length-of-tail to length-of-undertail-coverts ratio difference between the two species. See text for further discussion. Photos courtesy of Elisabeth Phinney.

characters, especially when a darkish pileum sets off a whitish superciliary, are sometimes misidentified. As mentioned earlier, hatching year Red-eyed Vireos can show less distinct dark lines between superciliary and crown, sometimes nearly invisible in the field. If a dark line is present there, however, then the bird is not a Warbling Vireo. Red-eyes always show darker, bolder lores and a darker post-ocular stripe. Additionally, the dark greenish or greenish-brown auriculars contrast with the much paler throat, sides of the neck, and the superciliary complex in the Red-eyed Vireo, whereas in the Warbling Vireo there is often little difference in the coloration of cheek area and the sides of the neck and nape. It should be pointed out that the above criteria need be used only on hard-to-identify birds. In general, Red-eyed Vireos are larger, longer winged, larger-billed, much greener overall, and possess a much bolder superciliary complex. The observer does, however, need to be aware of the variation in these birds, and caution is due in making (especially extralimital) identifications of some individuals based upon field guide criteria.

Bright Warbling Vireos can be confused with Philadelphia Vireos as well. Typically, the Philadelphia Vireo plumage contains a unique, extensive warm yellow (generally strongest on the breast). This yellow is unique to this species (for good representation of this color, see Peterson 1961, or Godfrey 1966). Philadelphia Vireos are shaped differently from the other vireos. They are chunky, round-headed vireos with relatively short tails and bills (fig. 2). Thus they give a distinct impression related to these features. Only this species possesses strong yellow on the throat (not all birds, but especially prevalent in hatching year birds). Difficulties arise with bright Warbling Vireos and with rather yellow Red-eyed Vireos in fall. Although Philadelphias are generally smaller than either of the other species, there is size overlap with both Red-eyed and Warbling Vireos (Ridgway 1904). As mentioned earlier, there can be overlap with all three species with respect to back color and pileum color (fig. 1). This is especially true with respect to hatching year Philadelphias, which possess olive or dull greenish gray pileum, quite close to the shade of this area on many Warbling Vireos.

Some Warbling Vireos can appear yellowish on the entire underparts, but this is usually a dull yellow on the breast and throat, and is very different in shade from the warm yellow of the Philadelphia, and is never as bright as in the Philadelphia on the breast and throat. In general, there is a greater degree of dark coloration in the lores of the Philadelphia, and the post-ocular stripe is often wider just behind the eye (fig. 2) than in Warbling or Red-eyed Vireos, often being as wide as the eye in this area. This, in combination with the short bill, rounded head and dark lores, gives the Philadelphia Vireo a distinctive "facial expression" unlike the other species. This distinctiveness is further enhanced in some individuals by a *relatively* extensive light area under the eye.

There is disagreement as to the degree of difference in scold notes or "whines" of these vireos. The experienced observer will probably want to give attention to this aspect of identification as well.

Field identification is a continuously changing, growing process. It is hoped that this article will contribute to that process with regard to these species of vireos.

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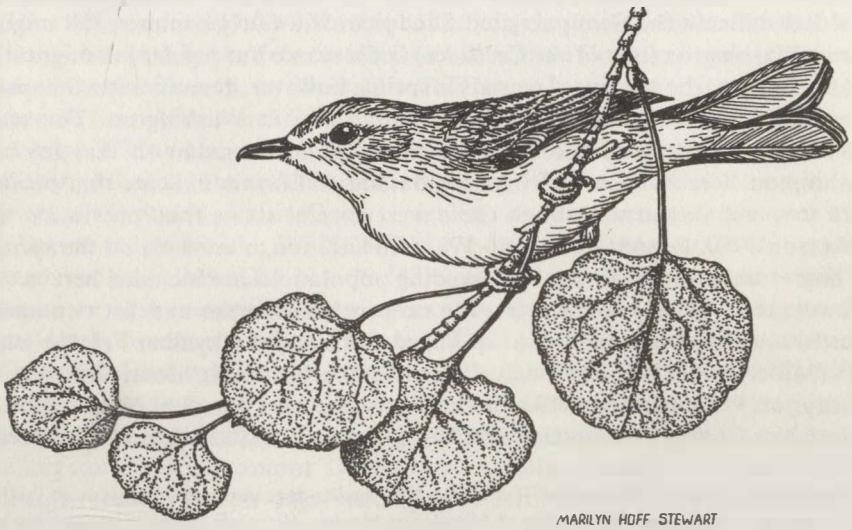

MARILYN HOFF STEWART

Status of the Semipalmated Sandpiper in Washington and Northern Idaho

JOHN W. WEBER

The A.O.U. check-list (1957) describes the range of the Semipalmated Sandpiper (*Calidris pusilla*) as follows: breeding in North America's arctic and subarctic; wintering from the Gulf Coast and South Carolina south through eastern Mexico[1] and the West Indies to southern Brazil; migrating in spring through the interior of the United States and Canada to the Atlantic Coast, rarely to the intermountain West; migrating in fall over the spring route but spreading to intermountain British Columbia. In Washington, *pusilla* has heretofore been considered a rare migrant. This paper cites comments of recent authors on the occurrence of this species within the state, summarizes published records of specimens taken in Washington, and presents data that indicate the Semipalmated Sandpiper is a fairly common fall migrant in eastern Washington (east of the Cascades) and a scarce but regular fall migrant along the state's coast; the paucity of records in spring, however, demonstrates that *pusilla* is a rare migrant at this time of the year anywhere in Washington. The seasonal distributional pattern of *pusilla* in northern Idaho is similar to that for eastern Washington. Recent records from Oregon and California indicate that *pusilla* is a more frequent transient through these west coastal states than previously known (Roberson 1980, Garrett and Dunn 1981). In addition, comments on the spring and fall migrational routes of Alaskan breeding populations are included herein.

Jewett et al. (1953) consider *pusilla* rare in Washington and list two specimen records: one taken (disposition of specimen unknown) by Lyall at Fidalgo Island in 1858 (Miller et al. 1935) and one collected by Warburton at Mount Rainier, Pierce County, on 9 September 1919. The latter is specimen No. 5 at Washington State University's Conner Museum (WSUCM). Jewett et al. (1953) also say this species has

[1]Contrary to A.O.U., Phillips (1975) indicates that *pusilla* does not winter regularly in the U.S. (except for possibly the southern tip of Florida) or Mexico. His study, based largely on museum specimens, turned up no specimens taken in winter from this region. One was finally collected expressly for Phillips' study by Ogden at the southern tip of Florida on 11 January 1974.

probably "been often overlooked among the migrating hosts of shore birds in Washington." Hudson and Yocom (1954) make no interpretive comments on the status of this species in southeastern Washington, the region treated in their paper, but list several specimens: one taken by Jollie near Ewan, Whitman County, on 28 August 1949; one (WSUCM No. 51-272) collected by Hudson on 16 August 1951 at O'Sullivan Dam, Grant County; two (WSUCM No.'s 51-274 and 51-275) taken by Hudson at Twelve-Mile Slough, Adams County, on 3 September 1951. The above-mentioned specimen taken by Jollie is No. 872 in the University of Idaho's bird and mammal museum (UIM). Hall and LaFave (1958) list one "definite record" they had for eastern Washington: a specimen (WSUCM No. 57-379) taken by LaFave at Reardan, Lincoln County, on 29 August 1957. The following year LaFave (1959) collected two more specimens in eastern Washington: one (WSUCM No. 58-281) at Cow Lake, Adams County, on 10 May 1958 and one (disposition of specimen unknown) at Reardan, Lincoln County, on 12 September 1958. Larrison and Sonnenberg (1968) describe this species as a "rare spring and fall migrant" in Washington but list no records. Johnson and Murray (1976) say that published records for southeastern Washington are "few and scattered" and list a previously unpublished record of LaFave: one (WSUCM No. 60-225) from Reardan Slough, Lincoln County, on 1 July 1960. Weber and Larrison (1977) classify *pusilla* as a rare spring and fall migrant in southeastern Washington, refer to specimen records mentioned by Hudson and Yocom (1954), and speculate on the rarity of this species in this region: "Field identification problems might explain the paucity of records for this species; possibly occurs more frequently than available records indicate." In the latest distributional account of Washington birds (Alcorn 1978), the Semipalmated Sandpiper is listed as casual (i.e., of irregular and scattered occurrence) in both eastern Washington (east of the Cascades) and in the Cascades.

During the fall migration of 1978, the writer observed seven *pusilla* in eastern Washington and collected two to confirm identification: an immature female (WSUCM No. 78-400) taken at Albion, Whitman County, on 31 July 1978; two seen at a scabland pond several km. northwest of Lamont, Whitman County, on 9 August 1978; four observed, one of which was collected (immature female, WSUCM No. 78-401), on the north bank of the Snake River, Whitman County, about 7 km. west of Clarkston, Asotin County, on 30 August 1978. In addition, the writer has two 1978 sight records from Manns Lake, Nez Perce County, in adjacent northern Idaho: two on 31 August 1978 and two on 14 September 1978. A casual check by the writer during the following fall along the north bank of the Snake River in Whitman County, about 7 km. west of Clarkston, Asotin County, yielded two records: two seen, one of which was collected (adult female; WSUCM No. 79-582), on 9 August 1979; one adult (undetermined sex; WSUCM No. 79-583) on 29 August 1979. For the 1980 fall migration, the writer adds the following records for southeastern Washington: four (one collected; immature male; UIM No. 2305) on 13 August 1980; three (one collected; adult female; UIM No. 2306) on 20 August 1980 and three on 29 August 1980, both records from the Snake River, Whitman County; three on 24 August 1980 and two on 29 August 1980, both sightings at the scabland pond in Whitman County several km. northwest of Lamont. During the same migrational period, the writer has several sight records for the adjacent region of northern Idaho: three at Moscow, Latah County, on 20 August 1980; two at Manns Lake, Nez Perce County, on 20 August 1980 and on 29 August 1980.

Not included in the aforementioned records of this species are two previously unpublished records from eastern Washington: WSUCM Numbers 56-331 and 56-479, both immature females and both collected by Verner at Stubblefield Lake, Spokane County, on 1 August 1956.

On the basis of one sight record in spring (29 May 1953) at Moscow, Latah County, and 29 specimens taken in fall in Latah and Nez Perce counties from 1950 to 1958, Burleigh (1972) lists *pusilla* as a "rare spring transient, and a fairly common fall transient" in northern Idaho. Since northern Idaho and eastern Washington constitute a geographic entity, the occurrence of the Semipalmated Sandpiper as a fairly common fall migrant in eastern Washington should not be surprising.

In addition to the previously mentioned specimen of *pusilla* from Fidalgo Island, the writer knows of only two other specimens from western Washington (both collected by Mattocks at Seattle, King County, on 2 July 1975): No. 28595, adult female; No. 28596, adult male (Burke Museum, University of Washington). Mattocks provided information on the following sight records by him and others of *pusilla* from western Washington: 11 in fall from 1 July (1975) to 28 September (1978) for the period 1974-79; five in spring from 10 May (1975) to 27 May (1973) for the years 1973-78. These records indicate that this species occurs as a scarce but regular migrant along coastal Washington.

A recent study by Harrington and Morrison (1979) shows that the Semipalmated Sandpiper generally uses different spring and fall migrational routes in North America. Their data also indicate that eastern breeding populations use eastern migrational routes and that Alaskan breeding populations migrate through the Great Plains regions of the United States and Canada. While other breeding populations tend to use different northward and southward migrational routes, Harrington and Morrison found that most Alaskan *pusilla* retrace the North American portion of their spring route during autumnal migration. Bill measurements of adult Semipalmated Sandpipers by Harrington and Morrison show that females have longer bills (exposed culmen) than males and that bill lengths for both sexes are smaller for Alaskan breeding populations than those from the eastern arctic. They found average bill lengths to be 17.27 mm and 18.92 mm for males and females, respectively, from Alaska, whereas corresponding measurements of birds from eastern Hudson Bay were 19.99 mm and 21.54 mm. Although Conner Museum specimens of *pusilla* from Washington are mostly of immature birds, the bill lengths (17.0 mm each for two females; 18.0 mm for one male; 17.0 mm for one of unknown sex) of four adults indicate, as one would surmise, that these birds probably originated in Alaska. Including both immature and adult Conner Museum specimens from Washington, bill lengths vary from 16.0 to 18.0 mm (ave. 17.2 mm) for five males and from 17.0 to 19.0 mm (ave. 17.9 mm) for six females.

On the basis of the records presented herein, the Semipalmated Sandpiper can be considered a fairly common fall migrant and a rare spring migrant in eastern Washington, and a scarce but regular migrant (apparently less numerous in spring) in western Washington. In spring, as was noted, *pusilla* has been recorded only once both from eastern Washington (10 May 1958) and northern Idaho (29 May 1953). The rarity of this species as a spring migrant in all regions west of the Rocky Mountains in the United States suggests that Alaskan breeding populations of *pusilla* also use different northward and southward migrational routes through the United States: primarily east of the Rockies in spring but extending westward to at least northern

Idaho and eastern Washington in fall. The scarcity of suitable habitat in spring in northern Idaho and eastern Washington might account for the Semipalmated Sandpiper's rarity in this region at this time of the year. Melting snow at higher elevations with consequent higher water levels on lakes and rivers possibly forces *pusilla* to largely bypass the intermountain West during spring migration. (Several other species of transient shorebirds are also more common in fall than in spring for this region; see Weber and Larrison 1977).

Additional field work, particularly selective collecting, in other western states will shed more light on the migration of this species through western North America.

ACKNOWLEDGMENTS

The writer is grateful to P.W. Mattocks, Jr., for furnishing information on records of *pusilla* from western Washington. The writer thanks R.E. Johnson and E.J. Larrison, curators of the bird and mammal museums at Washington State University and the University of Idaho, respectively, for access to specimens in their care. K. Kaufman critically reviewed the manuscript.

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Status of the Gyrfalcon in Missouri, with notes on Field Identification

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In the wide-open spaces of the upper Midwest, the Gyr may occur more often than the few records would imply

The Gyrfalcon *Falco rusticolus* is not listed in Easterla and Anderson's 1971 checklist of the birds of Missouri. However, Burr and Current (1975) cite a record for the state. This article will attempt to correct and summarize these records, and report a recent sighting of this species.

Moore (1949), in *The Bluebird,* reports on a record by Br. Hubert Lewis in Glenco, Mo. Details are scarce in this report and it seems to be dismissable as a questionable record. Wilhelm (1958) ignores this record and cites a single occurrence, giving no observer or details. These are the only two published records of sightings, there being no specimen or photograph of the Gyrfalcon in Missouri.

In the Midwest the Gyrfalcon has occurred in Oklahoma (Platt 1977), Kansas (Johnston 1960), Nebraska (Rapp *et al.* 1958), Iowa (Brown 1971), and Illinois (Burr and Current 1975, Bohlen 1978). All of these states except Iowa have specimen records. Overall there are almost twenty records of Gyrfalcon for these states combined, but no single one of these states has more than about three records, except Illinois (at least twelve records).

At 1123 C.S.T. on 18 December 1977, for approximately five minutes, the authors observed a gray-phased Gyrfalcon while conducting a Christmas Bird Census at Squaw Creek National Wildlife Refuge 5.6km s.w. of Mound City, Holt Co., Missouri. Weather conditions at the time of observation were sunny with a light westerly wind of about 5 mph and temperature of about 4.5°C.

The Gyrfalcon approached to within 75 meters of us, about 30 meters above prairie and marsh, at the north end of pool "A-16." It then turned and gradually gained altitude as it drifted and "rowed" off toward the east-southeast, where it stooped in mock skirmishes with about fifteen Bald Eagles *Haliaeetus leucocephalus* which were soaring in thermals over the eastern side of the main pool.

The Gyrfalcon appeared about the same size as or slightly larger than a Red-tailed Hawk *Buteo jamaicensis,* whitish below with bold, clear grayish-brown streaks extending from the upper breast to the undertail-coverts. The undersides of the wings and tail were rather light without noticeable contrasting features. The back and rump were uniform gray-brown. The sides of the head (auriculars to nape) were dusky to sooty gray with a barely-perceptible area of whitish extending upward from a small moustache mark which projected backward just below and behind the eye. (To the first author, the head and face appeared uniformly sooty-grayish.) These plumage features were studied for about 15 seconds with Zeiss 10X40 and Mercury 7X50 binoculars before the bird turned to the east-southeast, when the angle of sunlight was excellent at about 85° to the south.

As the bird began to move away from us, Barksdale raced to the car and rapidly set up observing the Gyrfalcon through a 15-60X zoom Bausch & Lomb telescope, at 30 to 40 power.

As the Gyrfalcon flew across the prairie, two styles of falcon flight were noted, and wing and tail shape and lengths were detailed. The Gyrfalcon cut through the air with heavy powerful strokes, slower and shallower than the wingbeats of Peregrine Falcon *Falco peregrinus* or Prairie Falcon *F. mexicanus,* on long, broad, pointed wings. The rowing effect was broken as the bird took on a typical falcon soaring posture when it began to get closer to several soaring birds. The wings held flat appeared bowed forward and backward along the leading and trailing edges respectively. The large, broad tail tapered from the wider base to the slightly narrower tip. The Gyrfalcon approached the east side of the refuge, where the two Red-tailed Hawks and fifteen Bald Eagles soared on thermals. At several points, as the bird played in the winds, it would stoop on an eagle (that would flip over, presenting talons); then with deep strokes of the long, pointed wings it would regain its original height immediately.

The size of the falcon was again easily deduced when in close proximity to the eagles: its wingspread being about one-half and its body length (head to tail) being about two-thirds that of the eagles. Compared to Red-tailed Hawk the bird was very similar in both total length and wingspread. At no time during the observation did it come extremely close to any Red-tailed Hawk, but nearby soaring birds occasionally drifted into the field of view.

While Rowlett was loading camera film, Barksdale, stepping back from his telescope for an exhilarated breath, accidentally bumped the scope and the bird could not be relocated. Field notes and sketches were recorded immediately and independently, without the aid of field guides (which neither of us had anyway), before we rushed off to the area of last sighting.

Three potentially confusing species, Peregrine Falcon, Prairie Falcon, and Goshawk *Accipiter gentilis*, were consciously considered and eliminated on the spot. The smaller Peregrine and Prairie Falcon would not seem so strikingly bulky. An immature Peregrine should appear uniformly darker, brown above with buffy underparts heavily streaked with brown; an adult would be barred with black below;

and both plumages have bold, contrasting facial patterns and narrower, more sharply pointed wings. The Prairie Falcon is the most closely related species to the Gyr in North America (these two belong to a group which also includes the Lanner *F. biarmicus,* Saker *F. cherrug,* and Laggar *F. jugger* falcons of the Old World — Brown and Amadon 1968). The Prairie and Gyrfalcon have similar wingtip shapes. They differ in bulk, and most importantly, the sandy brown Prairie Falcon shows the bold black area in the axillars. Prairies usually have a cream or white superciliary line also, with a crisp black malar stripe.

The Goshawk, in immature plumage, is massively built like the Gyrfalcon, but has conspicuous white tufts at the crissum; a prominent white supercilium; broad, short, rounded wings; and a long, narrow tail, often appearing wider at the tip than at the base. Because of our initial close looks we can eliminate the Goshawk as a possibility for this bird, based on field marks observed. Behaviorally, this bird presented distinctive traits that Goshawks would rarely imitate.

The typical "flap-flap-flap-glide" flight of Goshawks is often modified during chases, when powerful, steady, pumping motion may dominate. In more opportunistic hunting situations, Goshawks could glide and soar with the wings swept back, so as to closely resemble a Gyrfalcon in similar situations. Adding to the problem in these circumstances are the facts that Gyrfalcons tend to splay their primaries broadly enough to resemble accipiters or even buteos while soaring, and often take on a flapping-gliding flight similar to that of Goshawks when in casual hunting flight (Fyfe 1975 and pers. comm.). Additionally, as mentioned before, the Gyr's wingtips are almost always held more spread than those of other falcons and even when tightly closed they appear a bit more rounded; its wings are also broader than those of other falcons. The flight styles of both species vary according to the situation, including surroundings and weather conditions. Goshawks, being bolder than their smaller relatives, are not afraid of working in large open areas. Typically this occurs for short periods, and the birds usually dissolve into a stand of trees before long. Gyrs tend to stay definitely in the open.

Falcons often "play" amongst themselves, and for this bird to do so with such ease around the eagles seems very uncharacteristic of a Goshawk. The way in which this bird regained its pitch after tight, shallow stoops at the eagles is characteristic of the genus *Falco*. Merlins *F. columbarius* and Gyrs tend to take a swing upward just before they stoop downward in a more shallow dive than that of a Peregrine. This bird appeared to exhibit this behavior as well.

Occasional winter appearances of Gyrfalcons at Squaw Creek seem logical, presuming that some of these roaming falcons might follow the Missouri River valley southward to the refuge where food often abounds. A hard freeze, with low temperatures of -23°C for several nights, was noted in early December, followed by unusually mild temperatures in the middle of the month which thawed most of the ice cover at Squaw Creek. An estimated 250,000 Mallards *Anas platyrhynchos* and 65,000 Snow Geese *Chen caerulescens* were concentrated in the open water and were attended by scores of raptors including 318 Bald Eagles on 18 December. Many of the pools froze again on 19 December, and the waterfowl and raptor concentrations diminished. Almost daily searches on the refuge by numerous observers during the following week failed to find the Gyrfalcon again.

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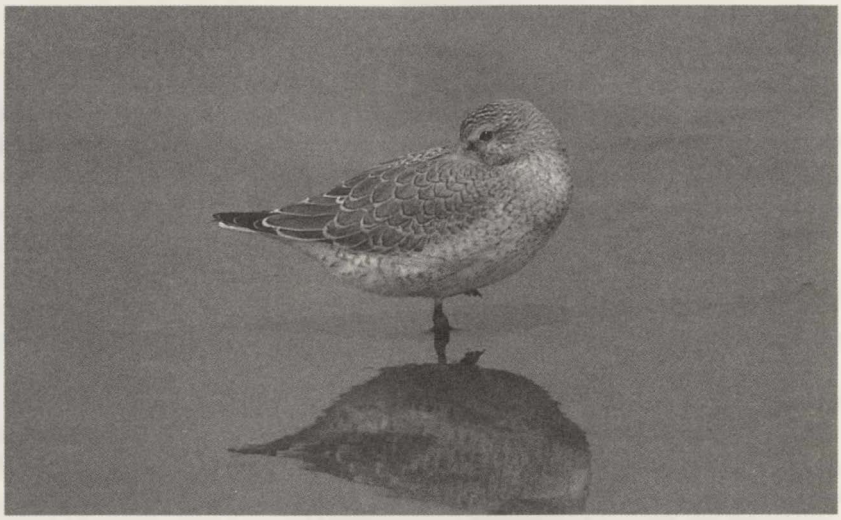

This resting shorebird, with its leg length and bill shape both obscured, was the puzzler on the back cover of the preceding issue. Can you identify it before reading the solution below?

Answer to Snap Judgment 10

KENN KAUFMAN

How many readers thought to guess the name of the photographer? If you said that this looked like a Tom Davis photo, you get full marks. Thomas H. Davis, Jr., the Sage of Jamaica Bay, has earned a reputation for producing clear, razor-sharp portraits of shorebirds and other species. Anyone can appreciate photographs of this quality, but it is the students of field identification that love them best for the wealth of detail that they present.

To continue our backwards analysis, what is the *age* of the bird in the photograph? Serious shorebirders, even those (if any?) who are unfamiliar with this particular species, should be able to guess that the pictured bird is a juvenile in fresh plumage. The bright pattern of the upperparts is the key. In both of our major shorebird families, the plovers (Charadriidae) and the sandpipers and their allies (Scolopacidae), young birds of most species get a good start in life by acquiring a juvenal plumage that features beautiful contrasting patterns on the scapulars, wing-coverts, tertials, and often the upper back and the crown. Typically these feathers have either pale spots arranged neatly along their edges, or even-edged pale borders, often set off by subterminal dark bars or lines. The pictured bird is a classic example of the latter type of pattern.

Accepting that the bird is a juvenile, can we tell whether it is a sandpiper or a plover without seeing the bill shape? Look at the scapulars, coverts and tertials: each feather has a neat white fringe set off by a narrow black subterminal line. Some of our smaller plovers show a pattern similar to this in juvenal plumage (although not as strongly contrasted), but none of them has the extensive streaking and spotting on the underparts that are apparent on the pictured bird. The larger Black-bellied Plover *Pluvialis squatarola* and Lesser Golden-Plover *P. dominica* do have heavily marked underparts in juvenal plumage — but their scapulars, coverts and tertials are edged with bold spots rather than even-edged borders. So by the process of elimination, the bird in the photograph must belong to the sandpiper family.

We can tell that this is a relatively short-legged sandpiper, even though it is nearly "knee-deep" in water, because the intertarsal joint on the leg is visible above the waterline and a very short distance below the body (in longer-legged shorebirds such as curlews, godwits, yellowlegs, etc., the tibia — the section of the leg above the intertarsal joint — is proportionately longer). And we could rule out a lot of species by noting that most juvenile sandpipers do not show such extensive markings on the sides and flanks. But none of this analysis is necessary, actually, because the pattern of the upperparts referred to earlier is diagnostic. The bold white fringes and narrow black subterminal lines, combined with the unmarked gray feather centers, repeated on every one of the coverts, tertials and scapulars, can indicate only one species: the Red Knot *Calidris canutus* in juvenal plumage.

And here, if you like, is proof.

This plumage, incidentally, is labelled "winter" in some bird guides; but winter adults are actually much plainer gray above.

New Tern Records from Southeastern Washington and Northern Idaho

JOHN W. WEBER

RECENT sight and specimen records provide new information on the occurrence of several species of terns in southeastern Washington and northern Idaho. An account of these records is presented here.

Burleigh (1973) reports that terns of the genus *Sterna* are "rather scarce and irregular transients" in Idaho and that he succeeded in collecting only seven specimens over an 11-year period, presumably from 1947 to 1958 (Burleigh 1972). Recent impoundments along the Snake River have changed the character of this river in southeastern Washington and in the Lewiston region of Idaho, possibly accounting for the apparent increase of terns, both in numbers and in species, visiting this region.

Forster's Tern *Sterna forsteri*

Burleigh (1972) lists this species as a fairly common but local summer resident in the southern part of Idaho and as of casual occurrence as far north as Adams County. Apparently the first record of *forsteri* from the state's panhandle is of one taken by the writer at the confluence of the Snake and Clearwater rivers at Lewiston, Nez Perce County, on 10 July 1979. The lone tern, observed on both the Idaho and Washington (Whitman County) sides of the Snake River, was in a mixed flock of California Gulls *Larus californicus* and Ring-billed Gulls *L. delawarensis* when collected. Data for this specimen, no. 79-586 in Washington State University's Conner Museum (WSUCM), are as follows: female with nonossified skull; left ovary, 7 x 11 mm; largest ovum, 3 x 3 mm; exposed culmen, 37.8 mm; wing, 261.0 mm; tail, 152.0 mm; tarsus, 25.9 mm; weight, 143 g. The writer's previous easternmost record of *forsteri* in Washington was at Rock Lake, Whitman County, where one adult was seen on 23 August 1976.

Although Forster's Tern is not known to breed in northern Idaho, breeding colonies are known from south-central Washington (Weber and Larrison 1977).

Common Tern *Sterna hirundo*

Burleigh (1972) describes *hirundo* as a "rare spring transient, and an irregular and scarce fall transient" in the northern part of Idaho. He lists only one spring record (8 June 1950 along the Snake River at Lewiston) and several scattered autumn sight and specimen records for Latah and Nez Perce counties.

The writer adds the following records, all from the Snake River between Lewiston, Nez Perce County, Idaho, and Asotin, Asotin County, Washington: two adults on 1 September 1977; one adult on 8 September 1977; a flock of five on 26 July 1978, one of which was collected at Asotin (WSUCM no. 78-403; female with ossified skull; left ovary granular, 9 x 4 mm; largest ovum, 2 x 2 mm); one immature female (WSUCM no. 78-472) taken in Idaho about 9 km south of Lewiston on 6 September 1978; one adult seen on 14 September 1978; three adults and one immature observed on 19 September 1978; one adult on 5 May 1979; a male (WSUCM no. 79-585; partially ossified skull; left testis, 5 x 3 mm) collected on 21 June 1979 at Asotin.

This species, though still uncommon, is apparently a more frequent transient and visitor in the Lewiston region than in the days of Burleigh's field work (1947-1958).

Godfrey (1966) lists the westernmost breeding locality for the Common Tern as Alberta. Previous reports of *hirundo* breeding in south-central Washington (Larrison and Sonnenberg 1968, Weber and Larrison 1977) are undocumented and presumably in error. Since the similar-plumaged *forsteri* does breed in this region of Washington, reports of breeding *hirundo* in the eastern part of the state will probably prove to be *forsteri*. However, records of Common Tern in eastern Washington during the months of May, June, and July suggest the possibility of breeding. Presumably nonbreeding *hirundo* are also known from Washington's coastal waters: 4 adults and 7 immatures were seen at Jetty Island, Snohomish County, from at least 28 June through July 1978 (Manuwal et al. 1979).

Arctic Tern *Sterna paradisaea*

The A.O.U. Check-list (1957) lists the Arctic Tern as breeding in the northern parts of the Northern Hemisphere, as migrating offshore in the eastern Pacific Ocean and along certain coastal regions of the Atlantic Ocean, as wintering in the Southern Hemisphere in sub-Antarctic and Antarctic waters, and as occurring accidentally at several locations: Colorado (near Denver), western New York (Ithaca), south-central Alberta (Belvedere), southeastern Ontario (Toronto), Hawaii (Hilo, Oahu), New Zealand, and the Black Sea. While further inland records have accumulated since the time of the 1957 check-list, it is clear that this species was historically considered to be purely accidental anywhere in the interior of the contiguous United States.

Although no records of the Arctic Tern are included in the most recent distributional account of Idaho's avifauna (Burleigh 1972), a first-year immature tern collected by Burleigh on 30 September 1953 along the Snake River at Lewiston, Nez Perce County, and initially identified by Burleigh as *hirundo*, was subsequently reidentified as *paradisaea* by R.C. Laybourne (Burleigh 1973). This is the first record of the Arctic Tern from Idaho.

In discussing the reidentification of this specimen, Burleigh (1973) quotes Laybourne, who summarizes what she observes as the differences between immature Common and Arctic terns: "The characters that distinguish *paradisaea* from *hirundo* are: back darker gray; rump and tail coverts gray, but paler than the back. Also the second outer primary markings are diagnostic. In *paradisaea* the tip of this primary is

gray, extending from about 25 to 32 mm, and the stripe along the midrib on the inner vane is much narrower and paler gray than in *hirundo*. In *hirundo* the tip of the second outer primary is dark gray for about 37 to 60 mm, the outer vane and stripe along midrib on the inner vane are dark gray, and the inner vane stripe is much wider than in *paradisaea*." Apparently this character can be used to differentiate between adult *hirundo* and adult *paradisaea:* the writer's examination of adult specimens of both species at WSUCM indicates that the length of gray on the second outer primary for *hirundo* exceeds that of *paradisaea*.

Another plumage character, one not mentioned by either Burleigh or Laybourne, that helps distinguish between immatures of the two species is the distinct bar across the wing (from the carpal joint to the body) of *hirundo* that is formed by the dusky anterior wing-coverts. In *paradisaea,* this effect is not as pronounced since the lesser wing-coverts do not contrast sharply with the darker mantle.

Surprisingly, neither Laybourne nor Burleigh mentions the reidentified specimen's tarsal length, a measurement that would clearly separate first-fall immature birds of the two species. Godfrey (1966) says autumn immature *paradisaea* have shorter tarsi than *hirundo* but that plumage is very similar. He gives no tarsal measurements for immatures of either species but lists the following for adult males (average in parenthesis); 19.6-22.5 mm (20.8 mm) for *hirundo* and 15.0-16.7 mm (15.8) for *paradisaea*. In fact, the tarsal measurements (21.0 mm and 22.0 mm for two females; 19.0 mm for one male) of the three first-autumn *hirundo* at WSUCM exceed those of the 13 adult *paradisaea* specimens at the museum. Thus, publication of the tarsal measurement of the tern collected by Burleigh on 30 September 1953 would conclusively establish its identity as either *hirundo* or *paradisaea*.

The writer observed an adult tern, assumed at the time to be *hirundo*, along the Snake River in the vicinity of Lewiston, Nez Perce County, Idaho, and Clarkston, Asotin County, Washington, from 8 September 1977 to 6 October 1977. This tern superficially resembled a Common Tern and would have been identified as such by reference to standard field guides, except that its bill lacked the black tip nearly always present in *hirundo*. During the period of observation, winter plumage replaced summer plumage, and on 6 October 1977, the writer collected the tern (WSUCM no. 77-436) on the Washington (Clarkston) side of the river. Data for this specimen: adult female with ossified skull; exposed culmen, 26.0 mm; wing, 233.0 mm; tail, 112.0 mm; tarsus, 15.0 mm; weight, 90.0 g. A tarsus of 15.0 mm identifies this specimen as an Arctic Tern rather than a Common Tern. Moreover, the length of gray (25.0 mm) on the tips of the second outer primaries falls within Laybourne's range for *paradisaea*. This specimen represents the second record of the Arctic Tern from Idaho.

A third record of *paradisaea* for Idaho is of an adult bird the writer observed at the confluence of the Snake and Clearwater rivers in Nez Perce County on 3 August 1978. This tern displayed field marks of *paradisaea* in breeding plumage (those the writer finds useful: all blood-red bill, more uniformly gray mantle than *hirundo*, and almost always grayer underparts than *hirundo*; the last character, however, is only supplemental to the first two). The Snake River at this location straddles the Washington-Idaho border, and the tern (WSUCM no. 78-397) was collected just inside the Washington border in Whitman County. Data for this specimen: female; left ovary (granular), 8 x 2 mm; no molt; exposed culmen, 34.2 mm; wing, 262.0 mm; tail, 153.0 mm; tarsus, 16.9 mm; weight, 85.5 g. The tarsal measurement confirms identification of this specimen as *paradisaea,* and the length of gray (33.0 mm) on the

second outer primaries falls closer to Laybourne's range (25-32 mm) for *paradisaea* than her range (37-60 mm) for *hirundo*.

The Arctic Terns collected by the writer on 6 October 1977 and 3 August 1978 are also the second and third definite records of this species in eastern Washington (east of the Cascades). Eastern Washington's first record is of one collected by Hanson (1958) on 21 May 1957 along the Columbia River near Ringold, Franklin County, about 170 km west of the confluence of the Snake and Clearwater rivers. Additional records of *paradisaea* from eastern Washington are as follows: one in summer plumage seen by R.E. Woodley on 2 October 1977 at the Yakima River delta, near Richmond, Benton County (Rogers 1978); two adults in summer plumage seen by the writer on 19 September 1979 along the Snake River, Whitman County.

Perhaps *paradisaea* is a more frequent migrant in eastern Washington and northern Idaho than previously known.

Washington's ornithological event of the year in 1977 was the discovery of breeding Arctic Terns at Jetty Island, Snohomish County, during the summer of that year (Manuwal et al. 1979). This record represents a 1330 km southeastward extension of the Pacific coast breeding range of *paradisaea*.

Caspian Tern *Sterna caspia*

Burleigh (1972) lists the Caspian Tern as "a regular but not common summer visitant in the southern part of the state; recorded once in northern Idaho." The one northern Idaho record he cites is of two birds seen at the reservoir east of Lewiston Orchards, Nez Perce County, on 31 July 1958.

Apparently the second record of the Caspian Tern from northern Idaho is of two adult birds seen by the writer along the Clearwater River at its confluence with the Snake River at Lewiston, Nez Perce County, on 19 July 1978. One of the terns was collected, and the data for this specimen (WSUCM no. 78-398) is as follows: adult female with ossified skull; left ovary, 15 x 10 mm; largest ovum, 3 x 3 mm; no molt; exposed culmen, 71.0 mm; wing, 418.0 mm; tail, 145.0 mm; tarsus, 46.0 mm; weight, 708 g.

Jewett et al. (1953) list summer records of *caspia* from south-central Washington but give no records from the state's southeasternmost counties. Weber and Larrison (1977) list this species as an uncommon, scattered summer resident in south-central Washington and as a probable rare migrant and summer resident in Asotin, Columbia, Garfield, and Whitman counties. Noteworthy, then, is the sighting of six adult Caspian Terns by the writer along the Snake River in Asotin and Whitman counties in the vicinity of Silcott, Asotin County, from 19 July to 10 August 1978. Although the terns were observed on several occasions always as a group about one of the islands in the Silcott area, there was no evidence of breeding. Frequent use of these islands by boaters may preclude their use as breeding sites for colonial nesters, such as *caspia*.

Caspian Terns were also present along the Snake from Silcott to Lewiston in 1979, when the writer saw one to two adults from 22 June to 25 July.

Prior to 1978, the writer's easternmost record of the Caspian Tern along the Snake River in Washington was in the vicinity of its confluence with the Columbia River, about 145 km west of Silcott, Asotin County. The slack water created by the recently completed (1975) Lower Granite Dam on the Snake River southwest of Pullman, Whitman County, possibly accounts for the Lewiston and Silcott records.

Black Tern, *Chlidonias niger*

Burliegh (1972) lists this species as a fairly common but local summer resident over much of Idaho. In northern Idaho, he mentions breeding records for Kootenai and Benewah counties. Along the Snake River in Nez Perce County, Burleigh describes *niger* as a fairly common spring and fall transient. The writer has found the Black Tern to be an uncommon migrant in this region (Nez Perce County) and has only two sight records: one along the Snake in the Lewiston-Clarkston area of Idaho and Washington on 6 September 1978; two on 20 May 1979 at the same location.

In eastern Washington, this species is known as a breeder and migrant on the lakes and sloughs of the Upper Sonoran Zone and lower part of the Transition Zone (Jewett et al. 1953). Weber and Larrison (1977) list *niger* as an uncommon migrant in Washington's southeasternmost block of counties (Asotin, Columbia, Garfield, and Whitman) and as a probable summer resident on some of the scabland ponds in northwestern Whitman County. On 4 August 1978, the writer collected two Black Terns (WSUCM skeletal specimen no.'s 79-476 and 79-477) from a flock of 20 immature and adult birds at a scabland pond in northwestern Whitman County several km northwest of Lamont. I.O. Buss and the writer saw a flock of about 100 at the same location on 29 July 1979. In both instances, the terns were presumed to be migrants. At a visit to the same pond on 11 June 1980, the writer saw three adult *niger*. Two of the terns, an apparent breeding pair, excitedly flew above and around the writer in his unsuccessful search for a nest.

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