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WHY NEGLECT THE DIFFICULT?

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Records of eastern birds in the West, especially in California, show an ever-increasing taxonomic discrepancy. Reports of especially distinctive species, resembling no local birds, may increase at a nearly geometric rate: there were already 382 valid California occurrences of the American Redstart *(Setophaga ruticilla)* through 1968 alone (McCaskie 1970a: 42), and over 200 of the less conspicuous Blackpoll Warbler *(Dendroica striata;* McCaskie 1970b:95), which had not even been authentically recorded anywhere in the West prior to the 1960s. Yet California still lacks published records of several eastern flycatchers (mostly recorded from Arizona) and of many eastern *subspecies*: for example, those of Hermit and Swainson's thrushes (as migrants; *Catharus guttatus* and *ustulatus),* Bell's, Solitary, and Warbling vireos *(Vireo bellii, solitarius,* and *gilvus),* such warblers as Nashville *("Vermivora" ruficapilla),* Yellow *(Dendroica petechia),* and Wilson's *(Wilsonia pusilla),* and various finches and sparrows—even though some of these, in the far north, extend west to Alaska. Eastern birds appear to stray west only if they lack western relatives, just as migrants used to "arrive" only on weekends!

Nevertheless, *all* straggling is of interest. What, then, should we be looking for?

SPECIES VS. SUBSPECIES

Subspecies have a bad name, even among well-known ornithologists. For example, *The Ibis'* editors for years stated flatly: "Trinomials are not admissible" except under special circumstances. Disagreements on the validity or identification of subspecies are not infrequent even among experts; many subspecies are indeed hard to distinguish, even with adequate series (hardly ever available); and puzzling variants and intermedi-

ates occur. Caution is clearly warranted, but this is not a unique feature of subspecies, as we shall see.

Undue neglect, or fear, of subspecies is not only unscientific; it can hamper rational efforts to conserve "biological diversity," as Dr. Stebbins terms it, and to understand bird movements. For instance, Summer Tanagers *(Piranga rubra)* breed in the southwest from the Colorado River valley east, but are very scarce in winter. At this and other seasons, stragglers also appear farther north (to Colorado) and west to the coast. These were long assigned to the western race *cooperi;* but when Loye Miller began to distinguish the races, and others followed (Phillips et al. 1964; Rea 1970), *cooperi* proved to be merely accidental in winter or off its breeding range, with only one valid coastal record. Other out-of-season or out-of-range records that can be verified pertain almost entirely to *P. r. rubra* of the eastern and southeastern (!) United States—a most unexpected source!

Shall we now forget the migrations of the various races of *Junco,* flicker *(Colaptes),* Yellow-rumped Warbler *(Dendroica coronata),* and Northern Oriole *(Icterus galbula),* just because they are not good species? Of course not; the significance and interest of their *migrations* do not depend on taxonomic questions. And suppose we later think one of them is, after all, better regarded as a species. Must we again find, as did Devillers (1970) on the sapsuckers, "complete lack of information on identification in field guides and a consequent confusion...ignorance of their comparative distribution and abundance, and failure to recognize real hybrids..."?

Neglect of subspecies can lead to completely mistaken ideas. Western female Red-eyed or Bronzed Cowbirds, particularly the race *Molothrus aeneus loyei (Tangavius aeneus milleri),* are plain gray, by no means blackish as still erroneously described in field guides (cf. Peterson and Chalif 1973). Reliance on such books cannot but lead to misidentifications. Confusion of races that differ strikingly in size (not color) has muddled the remarkable history and migrations of our other cowbird, the Brown-headed *(M. ater),* both along the Pacific Coast and in western Texas (see Phillips 1968b and Wauer 1973, vs. Grinnell and Miller 1944 and Oberholser et al. 1974).

Yet many people who happily ignore subspecific divergence in sapsuckers and cowbirds feel that the entry "sp.?" (in any genus except *Empidonax)* is a confession of poor "birdsmanship". Actually, of course, it is *far* easier to identify many female sapsuckers than most goatsuckers, young gulls and terns, hawks, etc., or even many young passerines.

Consider the teal. Male Blue-winged and Cinnamon teal *(Anas discors* and *cyanoptera)* are unmistakable in spring (alternate or nuptial plumage); but females, and males in other plumages, are almost indistinguishable externally. (There are anatomical differences, at least in

the syrinx, according to Lyndon L. Hargrave.) From August on, birders and banders avoid the ogre "species?" by a handy rule-of-thumb: call all these troublesome teal whatever species is commonest in the area in spring; never admit doubt!

These two teal, however, differ strikingly in their migrations. Blue-wings winter abundantly throughout Central America, and (increasingly sparingly) over most of South America; they are the commonest migrant duck in Colombia (Nicéforo and Olivares 1964) and Surinam (Haverschmidt 1968). Even in southwestern Ecuador "flocks of up to 1000" are seen (Marchant 1958). On the contrary, the northern race of Cinnamon Teal, *A. c. septentrionalium,* ranges commonly only to the highlands of Chiapas, México; apparently few go farther. Yet banded "Cinnamon Teal" from the eastern parts of California and Oregon, and eastward in the mountain states, are taken with fair regularity far beyond México, even to Panamá (Wetmore 1965) and Colombia (AOU 1957). Not surprisingly, the only published date of banding, in the United States, for any of these out-of-range birds seems to be 27 September, for a bird later recovered in Honduras (Monroe 1968).

Male Cinnamon Teal certainly outnumber male Blue-wings in the West in spring, in most years by a wide margin. Females presumably do likewise, though their automatic identification by the accompanying male can be risky; an apparent pair taken by Dr. C. T. Vorhies near Tucson, Arizona, proved to be male *discors* and female *cyanoptera.* But relative abundance in spring is not thereby proven for all other seasons. We should avoid rules-of-thumb, as our predecessors once did. Thus Brewster (1902:44) wrote: "...all of the seven blue-winged birds taken at this place [San José del Cabo, Baja California] in autumn by Mr. Frazar prove to be *cyanoptera.* They were shot at various dates from August 29 to September 31 [sic]. Teal supposed to be the same as those preserved were seen at San José del Cabo as late as November 9, but as immature autumnal specimens of *cyanoptera* are so very like those of *discors* that the two can be separated only by the most careful comparison of specimens in hand, it is by no means certain to which species the note last mentioned relates."

When we investigated this problem in Arizona (Phillips et al. 1964), we found no good proof that Cinnamon Teal even occur there in most of the fall, while there is at least a small flight of Blue-wings then. But no one has taken the hint and determined how much of the West this flight covers. Meanwhile, biologists blandly band "Cinnamon Teal", no one queries them, and dubious data pervade the literature more and more. Were these teal subspecies, all concerned would be more cautious, and our successors would not have to start from scratch and work out difficult species all over again. Thus does the bugaboo of species vs. subspecies falsify current concepts.

THE DETECTION OF UNUSUAL SUBSPECIES

Subspecies unusual in a locality are not always hard to detect. Nor does the search involve any killing of masses of common birds, which taxonomists have no desire, or time, to handle anyway. Its basis is simply knowledge of local ecology and distribution, at the season, and some acquaintance with museum skins. Thus we detected the various stray subspecies recorded in *The Birds of Arizona* by collecting the odd-looking, extreme-date, or out-of-place stray. We never handled numbers of birds to select specimens; thus anyone with a few strategically placed nets ought to do better.

An occasional species is so erratic that every flight should be sampled, particularly in the lowlands. Of *Loxia curvirostra* Griscom (1937:94) wrote: "Another moral of great importance is the necessity of collecting some specimens of Red Crossbills in every flight year, in whatever section of the continent it happens to take place." My own further studies fully endorse, indeed greatly amplify, this admonition; Red Crossbill flights from which specimens are not preserved and available tell us nothing of any scientific value (see Phillips 1974, 1975a). Other, more predictable species it is nonetheless wise to sample are wintering Evening Grosbeaks *("Hesperiphona" vespertina)* and Brown-headed Cowbirds. Lowland specimens of Brown Creeper *(Certhia familiaris)* and Golden-crowned Kinglet *(Regulus satrapa)* should be collected whenever possible. Nor should southern Californians forget that the main winter range of their local Fox Sparrow, the swollen-billed *"Passerella" iliaca stephensi,* is still undiscovered!

HOW TO LOOK FOR EASTERN FORMS

Many eastern subspecies are darker, and often less grayish (more rufescent), particularly on the back, than their western (or at least Great Basin) counterparts. Examples are: the Merlin *(Falco columbarius);* doves; Common Nighthawk *(Chordeiles minor;* back blackish, but a frosty whitish race occurs on the Great Plains); American Robin, *Turdus migratorius* (smaller, with obvious white spots in tail-corners); Water Pipit *(Anthus spinoletta);* Eastern or Common Meadowlark *(Sturnella magna);* various sparrows; and the Lapland Longspur *(Calcarius lapponicus).* But a few are paler, such as the White-breasted Nuthatch *(Sitta carolinensis)* and Winter Wren *(Troglodytes troglodytes;* especially on chest); and eastern woodpeckers may show more white or pale markings on the wings *(Dendrocopos* spp.) or back (Yellow-bellied Sapsucker, *Sphyrapicus varius;* see Devillers 1970). Geographic variations in species too complex to analyze here (certain sparrows, warblers, thrushes, etc.) are described in the classic volumes of Ridgway and Friedmann (1901-1950), and sometimes in *The Birds of Arizona.*

Under favorable conditions, the following hints may help select possible eastern strays. Land birds usually show more geographic variation than water birds, so are stressed herein. Along with subspecies, I include a few difficult eastern species for the consideration of western banders and field ornithologists:

Herons: The Eastern Green Heron *(Butorides v. virescens)* is a bit smaller than the more northwestern *anthonyi* and deeper rusty (less pale or even grayish-tinged) on the sides of the neck. (For the lower orders in general, see Palmer 1962).

Sandpipers: The Eastern Solitary Sandpiper *(Tringa s. solitaria)* has a wholly dark outer primary, without whitish speckling along its inner edge basally, and is slightly smaller than *cinnamomea,* sex for sex. Fall immatures have the back spotted with pale buffy (less cinnamon-tinged).

Hummingbirds: Female and young Ruby-throateds *(Archilochus colubris)* are very like Black-chinneds *(A. alexandri),* but the six inner primaries are still more pointed (narrowed) and the bill is shorter. The exposed culmen is less than 18 mm in males, though reaching 19.5 mm in females, whose measurements overlap *alexandri's.* In both species, young males usually differ from females by distinctly to heavily spotted throats; young male Ruby-throats are brighter green above, with this color extending over much of the crown (which is relatively dull in young Black-chins), in addition to their sharper inner primaries (Figure 1). Adult males look like small Broad-taileds *(Selasphorus platycercus)* with notched tails (central rectrices shortened) and without cinnamon-rufous tinges on flanks or lateral tail-edgings; in flight they do not produce the shrill whistling rattle of (non-molting) adult male Broad-tails.

Flycatchers: Small eastern flycatchers are often clearer or more greenish (less washed with brownish or dull olive) than their western counterparts, with more sharply contrasting (usually whitish) wing-bars and -edgings. Eastern *Empidonaces* (except the Least Flycatcher, *E. "minimus")* combine a broad, pale mandible (as in *traillii* and *difficilis* in the West) with a more pointed wing than western species (except many *hammondii,* especially males): their outer, tenth primary is as long as the fifth or longer. The Eastern Wood Pewee, *Contopus virens,* has a narrower chest-band, sometimes almost interrupted medially, of plain (less brownish) gray, and is also paler, less fulvous or brownish, on the concealed bend of the wing and, in immatures, has a more pronounced, paler wing-bar; adults have a pale mandible. The Eastern or Great-crested Flycatcher *(Myiarchus crinitus)* has a drab (not blackish) bill, gray (less whitish) throat and chest, and green-tinged crown that contrasts with the grayish sides of the head. On flycatchers see Phillips, Howe, and Lanyon 1966; Phillips and Lanyon 1970; and on the *traillii* complex Aldrich 1951, Stein 1963, and Wetmore 1972.

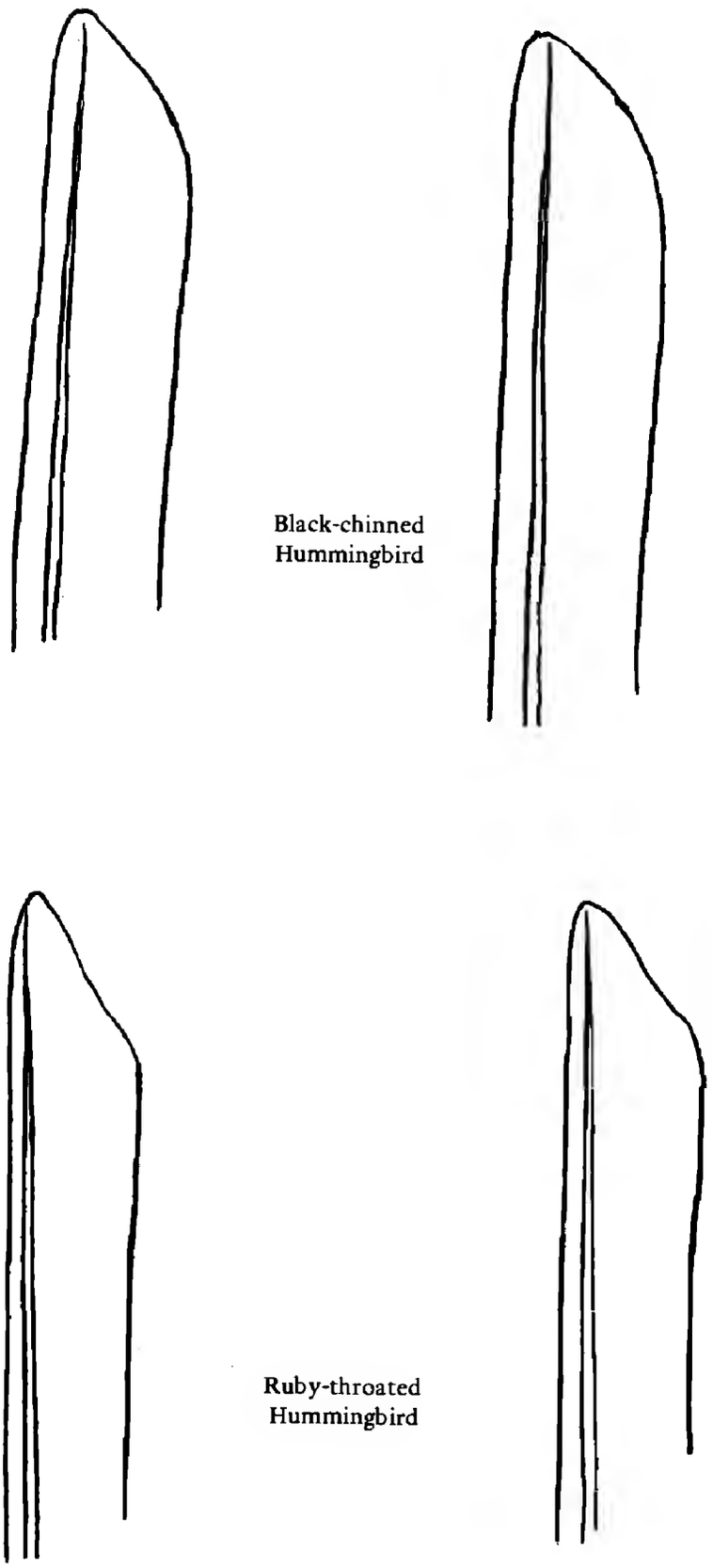

Figure 1. Variation in primary No. 6 (fifth, counting from outer, forward edge of wing) in *young male* hummingbirds. Upper two, Black-chinned (left, Baja California; right, Arizona): lower two, Ruby-throated (left, Morelos, México; right, Texas). U. S. National Museum of Natural History Nos. 203266, 258557, 128532, and 163859, respectively.

Drawings by Richard L. Zusi

Brown Creeper: The eastern races are shorter-billed, sex for sex, and with a slight buff tinge to the whitish superciliary; above they are relatively pale, with crown and back often rather reddish brown.

Wrens: The Eastern House Wren, *Troglodytes a. aedon,* is richer, more rufous-brown, above. The eastern race(s) of Winter Wren are also less sooty above; below the ground color is buffy or even whitish, not solidly brown-breasted. The migratory eastern races of Long-billed Marsh Wren *(Cistothorus palustris)* lack the faint dusky bars on the upper tail-coverts; while the Short-billed Marsh Wren, or Sedge Wren, *(C. platensis)* has these boldly barred and the crown streaked with whitish, not solidly dark.

Thrushes: Since the large, mountain races of Hermit Thrush normally migrate southeastward, individuals with the wing (chord) over 92 mm that appear in coastal regions should be preserved for study. The eastern and far-northern races (until badly faded in late winter, spring, and summer) have a strong brownish wash over the sides and flanks (and even the chest in autumn); these parts are nearly plain grayish in western races. (See Phillips et al. 1964.) Eastern races of Swainson's Thrush (and the Gray-cheeked Thrush and Veery, *C. minimus* and *fuscescens),* on the contrary, are grayer, less brownish on the flanks than the Pacific coast *ustulatus* (Russet-backed) complex; their backs are hardly if at all less reddish than the longer upper tail-coverts and the bases of the tail-feathers, which redden perceptibly in *ustulatus* but are usually grayish in these eastern forms (except of course Veeries). Eastern and Rocky Mountain Swainson's (Olive-backed) and Gray-cheeked thrushes have slightly larger, duskier, more prominent chest-spots than Pacific Russet-backs, due in part to their whiter background. In their brown-washed chests, Pacific *ustulatus* resemble most eastern Veeries, which, however, have even finer and less conspicuous spots than the usual western Veery. The Veery's real diagnostic character is the contrast of pale grayish flanks to tawnier sides of the chest and redder or darker upperparts, for many western Veeries are no redder above than some Pacific Russet-backs and hardly less spotted below. Here again the literature ignores subspecies (and seasonal variations) and is thus misleading; field guides ignore the flanks as well as all western races. The speculation (Miller and Stebbins 1964) that Rocky Mountain thrushes such as Olive-backs *(swainsoni* or *"almae")* migrate, other than as possible accidentals, through southern California (or anywhere nearby) is unfounded (Phillips 1947b, Phillips et al. 1964).

Blue-gray Gnatcatcher *(Polioptila caerulea):* The eastern race is not strongly marked, but is brighter, clearer (more bluish) gray above, within age/sex classes, and has less visible dusky at the base of the outer tail-feathers.

Golden-crowned Kinglet *(Regulus satrapa):* The eastern race is grayer, less greenish, on the back, rather short-billed, and more prominently white- and dusky-spotted on the wings. (The Ruby-crowned, *R. calendula,* is excluded, as eastern birds are inseparable from most western ones; see Phillips 1965.)

Water Pipit *(Anthus spinoletta):* Eastern birds are a darker, sootier fuscous above, but similar birds may prove to inhabit the Olympic Mountains, Washington. Rocky Mountain birds are larger (sex for sex), less streaked on the flanks (and generally less streaked in alternate or breeding plumage), and sometimes have a shorter hind claw; but similar color variants occur in other races, and the measurements of alleged *alticola* from California (Grinnell and Miller 1944) and the East must be compared before the records can be accepted (see Phillips et al. 1964; Sutton 1967).

Vireos: Eastern races are generally brighter, more yellowish on the sides and flanks and greener-backed, but eastern Red-eyed Vireos *(Vireo olivaceus)* differ only in somewhat darker crowns and backs, as far as I can see. Coastal Solitary and Warbling vireos, like coastal *Empidonaces,* American Goldfinches *(Spinus tristis),* and some coastal sparrows and warblers (especially in the San Francisco Bay area), tend to be smaller than their relatives elsewhere in North America; and this is nearly the only difference between coastal and eastern Warbling Vireos, though the eastern do have slightly paler crowns (and perhaps a larger, paler bill). It is advisable to collect Warbling Vireos on the coast with wings (chord) over 70 mm, or Solitaries over 77. Eastern Solitaries, besides being brighter yellow-sided, have a slatier (bluer) head, less pale or drab, age for age; the Rocky Mountain race *plumbeus* is plain gray-and-white, with slight yellowish tinges in fall plumage only. Both these are larger than Pacific *cassini,* with more white in the tail.

Warblers: Some eastern warblers are duller, less bright greenish and golden, than their western cousins; but age, sex, and plumage are also very important. This dulling eastward is most obvious, in Wilson's Warbler, on the lores and forehead, which have no chrome or orangeish tinge, though the back is also rather dull, deep (less yellowish) green. Eastern Orange-crowned Warblers, *"Vermivora" celata,* are often erroneously reported from California; but in fact they do not normally reach the coast. They are very dull, with dark backs and rumps even in males, young fall females being grayish below and on the head. Eastern Nashvilles (contra Miller 1942) are also dull, but less strikingly so. The dullness of eastern races of Common Yellowthroat *(Geothlypis trichas)* is expressed by a graying of the whitish band behind the male's black forehead and cheeks. In spring, male eastern Yellow Warblers have heavier, slightly darker rufous chest-streaks (in fall these are much reduced). Mourning Warblers *(Oporornis philadelphia)* may lack the white eye-arcs of MacGillivray's *(O. tolmiei),* in fact usually do so as adults, and males

in alternate (nuptial) plumage have the gray of the head commonly covering the lores and chin, thus accentuating the contrast of the black lower throat-patch. But I have seen a fall adult male MacGillivray's with no white on the eyelids, and must repeat that the only sure mark of the Mourning is the shorter tail, usually more than 9 mm shorter than the chord of the wing (or 10 mm shorter than the arc of the flattened wing; see Phillips 1947a:296 and Lanyon and Bull 1967).

Eastern Yellow-breasted Chats *(Icteria virens)* are greener above, less dull olive or drab, than western, unless worn; the white of their malar area is more restricted to the fore-part, near the eye and thence forward to the bill.

Icterids: Females and immature Baltimore Orioles *(Icterus g. galbula)* have dark, dull cheeks which lack bright yellow and do not contrast to the sides of the neck; they are often (but not always) more extensively yellowish below, over the posterior underparts, than normal *bullockii,* especially in adult females. This yellow is too rich (chrome) for Scott's Oriole *(I. parisorum).* They are heavier, less slim and long-tailed, than Hooded Orioles *(I. cucullatus),* with straight bills, not distinctly decurved at the tip; the lower mandible is uniform, not contrastingly black distally and pale (blue-gray) basally as in Hooded, Scott's, and many other orioles. Each full species' calls are distinctive, too. The Orchard Oriole *(I. spurius)* has a harsh, full, throaty *tcback* and is smaller than the Hooded (tail about 75 mm or less in females), which it otherwise resembles.

Eastern Brown-headed Cowbirds, like many eastern sparrows, have more swollen bills than western races (deeper, wider, more massive, and relatively shorter; see Hubbard and Crossin 1974); and females, if clean, also show a more whitish throat, often in considerable contrast to the grayish chest.

Tanagers: Northern tanagers in general have plain, uniform (red or yellowish) cheeks, without gray or black markings, except the more grayish cheeks of the Hepatic Tanager *(Piranga flava).* Only the Western Tanager *(P. ludoviciana)* has broad, conspicuous wing-bars, but young of other species may show narrow bars. Uniform, unpatterned tanagers from the Colorado River east are normally Summer Tanagers, whether or not they have pale bills; despite its emphasis in most field guides, the pale bill is useful only in adults in the breeding season, not at other times or in young (Phillips et al. 1964). More reliable in the identification of Summers are the clear staccato calls and the lack of graying on cheeks, flanks, and back, although young birds may be buffy brown in these areas. Female and young Summers vary greatly in color and may look much like female Scarlet Tanagers *(P. olivacea),* but are duller—more washed with brownish buff or olive, less definitely greenish above and less clear, clean pale yellow or greenish-yellow below than females

of *olivacea*; young male *olivacea* are black-shouldered. Scarlet Tanagers are smallest, about the size of a Western Tanager; Eastern Summer Tanagers are intermediate, and western races largest, particularly the tail (usually about 80 mm or more) and the swollen bill. Eastern *P. r. rubra* is also darker, age for age and sex for sex, than usual western *cooperi*, but a rather dark race in western Arizona complicates matters (Phillips 1966).

Cardueline finches: Eastern races have heavier, shorter bills (Evening Grosbeak) or longer wings (sometimes) than Pacific coast races. Eastern American Goldfinches *(Spinus t. tristis)* also show less white in the wings (and tail). Eastern Purple Finches *(Carpodacus p. purpureus)* are plainer fuscous-brown in females and young, lacking the olive (dull greenish) wash over the back. In this highly erratic group, northward wandering from Mexico should also be watched for. Evening Grosbeaks are difficult, but the Mexican race has a relatively shallow bill. Mexican Pine Siskins *(Spinus pinus macropterus)* are large, particularly long-tailed (tail about 46-50 mm long; see Phillips 1947b), and are sometimes very lightly streaked. Mexican Red Crossbills are large, with swollen bills (and often deep red or greenish); they often weigh over 39 g with wings (chord) over 93 mm in the female and over 96 in the male, and the width of the lower mandible, before entering the skin, is usually a full 10.5 mm or a little more. At the other extreme, and even less frequent in southern California, are the tiny *minor-sitkensis* group of (mostly northern) small-coned conifer forests; these commonly weigh 23-29 g, with the above measurements respectively under 83, under 85, and 8.0-8.8 mm in most cases. (For comparison, common measurements of crossbills in western forests of pines are: female wing 87-92, male wing 91-95, mandible 9.6-10.4, weight 32-39.) It is desirable to preserve a small series of skins of both females and red-bodied males from any invasion, especially of small crossbills.

Sparrows: Eastern "Rufous-sided" or Common Towhees *(Pipilo erythrophthalmus)* are solidly black, or even brown (!) in females, over the head, back, and scapulars. But the sedentary (?) northwest coast race *oregonus* is quite similar to the males of the eastern races.

Eastern races (like most others) of Savannah and Song sparrows *("Passerculus" sandwichensis* and *"Melospiza" melodia)* are not so broadly or blackly streaked below as California coast races, particularly the flanks in Song Sparrows, and the eastern races have bills somewhat swollen at the base. Eastern Fox Sparrows have pale, reddish streaks below and above, producing a patterned back, and have pale wing-bars. The relatively scarce Eastern Lark Sparrow *(Chondestes g. grammacus)* is sootier above, less brownish, with the cheeks (and sides of the crown) deep dull chocolate or almost dusky, not conspicuous bright chestnut. Eastern White-crowned Sparrows *("Zonotrichia" leucophrys)* have big pinkish brown bills and darkened lores like the mountain race *oriantha*,

but are somewhat darker dorsally and on the flanks, on direct comparison.

IS IT WORTH THE TROUBLE?

Most ornithologists will doubtless concede the importance of subspecies in studying such an erratic and unpredictable bird as the Red Crossbill. But some think this a unique species—as indeed it is. Yet the Summer Tanager, discussed above, is by no means the only case in which subspecies have shown that supposed lingerers or wanderers were in fact long-distance strays. This in fact is not uncommon in the cases of polytypic birds—and most bird species are polytypic. Thus it is advisable to have suspicious individuals collected and critically compared. This is particularly true in late fall, because (1) the arrival of stragglers seems to reach a high after the first days of October, and (2) the more difficult-to-identify subspecies become more and more difficult, often, as winter and spring progress, so that later birds may be impossible to identify to race. Let us examine the data produced by collecting birds at unusual dates and/or places, primarily in Arizona and northern Sonora.

All Eastern or Common Bluebirds *(Sialia sialis)* taken away from breeding areas (even just below them, as at Patagonia) are the dark-breasted eastern *S. s. sialis.*

The only Hooded Oriole taken after October is the eastern and central Mexican plateau race, *I. c. cucullatus.* The winter report of the local race *nelsoni* (to which all western breeding birds are probably referable) cannot be confirmed, contra the AOU (1957).

Two races of Brown Creeper breed in the mountains around Tucson. That to the south of town (Santa Rita and Huachuca Mountains) is so dark that its identity may be suspected in the field; there are no lowland specimens, nor have I ever seen it away from the mountains, even in Sonora. The more northern local race *(montana,* extending from here to western Canada) does occur rather regularly in the Tucson valley in winter; but whenever a sizeable flight occurs in the lowlands, most or all of the birds are of the far-northern and eastern race *americana,* which has even reached eastern California (Phillips et al. 1964).

Similarly, all Golden-crowned Kinglets from this valley (where they are scarce winter visitors and have never been found in flocks) are the eastern *R. s. satrapa.* This race is restricted by the AOU (1957) to south-central Texas, Minnesota, and east; while Grinnell and Miller (1944) and Miller (1951) lump all California birds in *olivaceus* (actually a northwest coast race). Naturally, therefore, Wauer (1962) reported as *olivaceus* the first California desert record. Reexamination of this Death Valley bird, however, shows that it too is *satrapa.* As far as I can determine, local breeders only exceptionally wander beyond the adjacent wooded mountains at any time. Straggling individuals from desert or

coastal southern California should be examined carefully in a museum.

The Ash-throated Flycatcher *(Myiarchus cinerascens)* winters rather regularly in central Arizona around Phoenix. But a closely similar bird not far northeast, near Roosevelt Lake, proved to be the only United States record of the tropical Nutting's Flycatcher, *M. nuttingi* (Dickerman and Phillips 1953).

Should a Brewer's Sparrow *(Spizella breweri)* turn up unexpectedly in northwestern California or the eastern part of the continent, the record will be far more meaningful if we know which of the quite similar subspecies it represents; for one breeds in sagebrush deserts, largely in the United States, while the other nests at timberline in the Canadian mountains.

The coin has a reverse side, too. Collecting of alleged strays (even if perfectly correctly identified) may prove them to be escapes, either of a distant, non-migratory race or with telltale signs of previous captivity. (See Willett 1933 on *Pitangus sulfuratus* in California; Hardy 1974 on *Passerina).*

UNUSUAL DATES

The time interval between fairly regular and exceptional occurrences may be small, or even non-existent. Once in Sonora I saw my last local (?) Summer Tanager, an adult male apparently *P. r. cooperi,* only a day or two before a female obviously small and dark (i.e. *P. r. rubra)* appeared. (These two races even overlap seasonally.)

In this Arizona-Sonora border region, the three dull orioles, looking like female Bullock's, that have been taken in winter all proved to be the longer-tailed, brighter-billed tropical Scarlet-headed Oriole *(Icterus pustulatus),* as did a 19 March bird, already within the migration period of Bullock's.

Water Pipits are seldom seen here after early May. When James R. Werner wisely collected one found in early June, it proved (after several years and one or two inconclusive studies) to be of an Asiatic race! (An unusually *behaving* pipit in Nevada likewise proved to be of Asiatic origin—Burleigh 1968.)

Similarly, most Nashville Warblers have left the Mexican border by about mid-May. When one flew aboard a ship off Los Coronados Islands on 28 May 1933, the observer judiciously collected it. It now proves to be the eastern race (Los Angeles County Museum).

In southern Arizona and northern Sonora, Swainson's Thrushes usually leave by the last week of October. The only one I ever saw later (9 November) proved to be the eastern race, here quite unusual—in fact, the only fall record. Yellow-faced warblers of the Townsend's-Hermit group *(Dendroica townsendi* and *occidentalis)* are also mostly gone after 22 October. A few Townsend's linger in November, but at

this time Black-throated Green Warblers *(D. virens)* from the east are just as likely, particularly in the lowlands. Two or three Black-throated Greens have also been sighted, by the usual "experienced observers" noting the usual "field marks", prior to late October; one of these was collected, however, and proved to be a hybrid of the other two species instead!

HAVEN'T WE PLENTY OF MATERIAL ALREADY?

Non-scientists and the uninformed generally imagine that museums have ample specimens already. Experienced researchers know better. One scarcely ever finds the information he needs. Such series as are presently available consist overwhelmingly of the commonplace (and often uninformative): the conspicuous territorial males, the bright, noisy, or gregarious transient, or the bird which (by its sheer abundance) can hardly be missed—now badly altered by "foxing" (post-mortem color changes), and with few or none of the data one seeks. Early collectors rarely captured (or prepared) the hard-to-get or troublesome—secretive species, extreme dates, juveniles, or birds in molt. They worked around their homes or in places of special renown. Museum coverage is thus very uneven from all standpoints: geographic coverage, sex, age, dates. A corollary of the dominance of the easy and conspicuous is the great scarcity of unworn specimens of many species, particularly freshly molted birds from the various breeding grounds. Therefore the identification of fall transients and wintering birds to subspecies is often nothing but an educated (?) guess, regardless of how definite checklists may appear to the uninitiated. One simply does not find useful material that is really comparable, i.e. of the same age, sex, season, degree of wear, color phase (if any), and in most species museum age. After 20 years, and several attempts, I am still uncertain of the geographic origin (subspecies) of a peculiar Fox Sparrow that turned up in Arizona—though this is a simple, monomorphic species! (That is, one need not compare specimens within sex/age classes, but can use anything.)

The winter ranges of various subspecies of the conspicuous swifts, swallows, and nighthawks remain unknown to this day. Even the species *Progne dominicensis* (2 subspecies) and *P. cryptoleuca* of martins have never been taken in winter, nor has the Dwarf Vireo, *Vireo nelsoni* (Phillips 1968a); and such species as the Mississippi Kite *(Ictinia misisippiensis)*, Colima Warbler *("Vermivora crissalis")*, and Botteri's Sparrow *(Aimophila botterii)* are hardly better known. The migratory race of Allen's Hummingbird, *Selasphorus s. sasin*, is a common bird along the California coast; yet hardly any specimens at all exist in museums from the whole fall period, mid-September to mid-December, and its whereabouts for half the year remain poorly understood (Phillips 1975b)!

Yet our taxonomy, and with it our need of more and better specimens, constantly advances. Dowitchers *(Limnodromus)* were discussed

for almost a century before Pitelka's (1950) detailed demonstration that two species, one of them polytypic, are involved; even now the specific characters have not been set forth, and no useful key exists (one is in press, Phillips MS). Still more recent was the first elucidation of the specific characters of Nutting's Flycatcher (Dickerman and Phillips 1953; Phillips 1960; Lanyon 1961) and the Alder Flycatcher, *Empidonax alnorum* (Stein 1963; Phillips et al. 1966; Wetmore 1972). Not until 1973 were the species of gnatcatchers provided with a key (Phillips et al. 1973).

This process continues, and each time a new set of unsuspected *minutiae* or trifling variations proves to be all-important to separate species. Let us therefore avoid any arrogant assumption of omniscience, and preserve what we can: if not the complete bird, at least a full description, as advocated by Devillers (1970), and preferably full measurements and at least a few rectrices and characteristic remiges. The wisest of Records Committees cannot certify meaningful records in any group like the "Tropical Kingbird", where species' limits remain undefined (Phillips and Lanyon 1970:192).

Absence of specimen documentation has already riddled our literature with ridiculous reports, for example those from the Texas coast of numbers (!) of Wilson's Snipe *(Capella gallinago)* "seen" in July and of Anna's Hummingbirds *("Calypte" anna)* in September, and a smaller number of the even more improbable Costa's Hummingbird *("C." costae)* (Williams 1938; Oberholser et al. 1974). The gullible are even presented with "undoubted records" of such desert birds in Canada (Tatum 1974)! Are we not entitled to a little responsibility? Condoning of the publication of such wildly improbable "sightings", wholly without tangible evidence, is already degrading the literature; if allowed to continue, it will in time blur or blot out the true ranges and migrations of birds. Let those who feel no scientific responsibility enjoy themselves to the full, but in private, please, without confusing issues. California field ornithologists do well to uphold more sober and knowledgeable standards.

Anyone who supposes that concern for the welfare of lost individual birds is of any benefit to their species should read the AOU report (1975:6A-10A). Actually, a more real danger is that conservation problems may be hidden by irresponsible misidentifications and general superficiality. The wise bee-keeper takes an intelligent interest in the world about him.

One could go on and on. Birds seen under unusual circumstances can, and frequently do, represent unusual individual variation, hybridization, or some distant race or species that "shouldn't" be there—and which may or may not have arrived under its own power. *All* of this needs critical study by a taxonomist, verifiable again and again in a museum, and not just some people's say-so, if ornithology is to remain a science.

Banders and wildlife managers go to a lot of trouble to mark individual birds for more-or-less temporary recognition. But subspecies, as Joe Marshall points out (in Phillips et al. 1964:x), are whole populations already permanently marked by Nature! Surely we should not reject Nature's helping hand. Anyone with the slightest grasp of the scientific method knows that exact identification of its materials must be the *sine qua non,* or indispensable basis, of all science, without which it dies. Let us beware of starting the long slide back toward the dark ages of humours, good and evil spirits, omens, witches, etc.

CAUTION

A few additional words on the dangers of premature and over-positive identifications may not be amiss. "Foxing" is quite general in bird skins, and a newly collected bird must be allowed to undergo this post-mortem fading for several years, frequently, unless equally recent material can be found to represent other races. Furthermore, as Dr. Joe T. Marshall, Jr., pointed out to me, growing feathers are darker than the self-same feathers after molt is completed! The aim of this paper is not to extend the flood of misidentification to the subspecific level. Anyone feeling unduly confident in his ability to name birds is strongly urged to examine adult Veeries shot in August; the old and new feathers on one bird are just as different in color as are most species of thrush.

July and August are especially bad months from the standpoint of molt (not covered by field guides). White or pale feathers, or parts of feathers, are less resistant to wear than dark parts. Thus worn birds appear very dark, but do not thereby become eastern races. A worn Mountain Chickadee *(Parus gambeli)* may be transformed into one of the black-capped species. Even as early as 6 June I once collected a black-bellied wren which proved to be an ordinary House Wren with the pale feather-tips worn off, exposing the dusky bases. Other birds may become bleached or discolored by summer, and juveniles frequently show markings not present in adults and thus denied by field guides. Blackbirds molt their tails and become "starlings". The over-positive should stop birding by mid-June, or take their field guides with a few grains of salt.

CONCLUSIONS AND SUMMARY

In any difficult group, correct understanding (and with it field identification) depends in the final analysis on our collections; this I recently (1975c) showed for the Semipalmated Sandpiper, *Calidris pusilla,* which simply does not winter in most of the United States where it is "seen" by the hundreds or thousands every winter, by all of our most experienced observers under the most ideal conditions! Therefore field ornithologists should strive to preserve scientific evidence; for example,

at least a few tail-feathers should be saved from any record of importance that is to be released (even after examination by an expert on the group); Museums, for their part, should make adequate provision for the permanent preservation of specimens which may be quite incomplete.

Only careful study of difficult species and subspecies can round out our knowledge of the ecological and seasonal distribution of western birds and of straying. Hints are given to help western ornithologists recognize eastern strays. Careless rule-of-thumb identification, and failure to preserve specimens of banded birds (never handled by ornithologists), have distorted the winter range of northern Cinnamon Teal beyond recognition. Other species are misunderstood through carelessness in treating subspecies (Swainson's Thrush, Brown-headed Cowbird). Specific or subspecific status is no guarantee that a given bird is or is not distinctive afield, or that it does or does not require detailed attention.

Situations that look deceptively simple superficially, i.e. when viewed only at the level of the species (or group of similar species), often prove to be hybrids *(Dendroica)*, color variants (not discussed here in detail), or escapes. Additional eastern subspecies are here newly recorded from California.

Some common birds (Allen's Hummingbird, Stephens' Fox Sparrow) are still inadequately represented in all museum collections combined. Additional birds needing special study and collecting include the Brown Creeper, Golden-crowned Kinglet, Brown-headed Cowbird, and especially the Red Crossbill. Nor should serious conservationists neglect the collecting of stragglers to try to determine what pesticides, if any, may be disrupting bird migrations.

Wildlife officials should avoid unrealistic to impossibly stringent requirements for permits, which hamper or indeed prevent progress in many aspects of our still quite imperfect knowledge of birds' movements and their causes. Such regulations are wholly irrelevant to bird populations and their annual fluctuations (AOU 1975:6A-10A). Do we wish to promote and encourage interest in, and understanding of, what still remains of the world around us, or to muzzle, thwart, and penalize such interest in an unrealistic, political, and unconsciously (?) anti-scientific manner while habitats dwindle and disappear?

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Robert W. Dickerman kindly read part of the manuscript. Most obvious, of course, is my debt to such brilliant predecessors as Baird and Ridgway, who laid the solid scientific foundations on which ornithologists may build.

None of the above is, of course, in any way responsible for any error, opinion, or conclusion herein.

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THE OCCURRENCE AND STATUS OF THE HORNED PUFFIN IN THE WESTERN UNITED STATES

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The Horned Puffin *(Fratercula corniculata)* breeds in northeastern Siberia, throughout the Bering Sea, on the Aleutian Islands and along the south Alaska coast east to Glacier Bay and Forrester Island (AOU 1957). This publication lists the bird as a winter visitor to Washington and Oregon and casual to California. They are only occasionally seen south of the Queen Charlotte Islands, British Columbia, in any season (AOU 1957, Jewett et al. 1958, Gabrielson and Jewett 1940).

Thus, considerable interest was aroused when 1973 produced sightings of 10 separate birds along the West Coast of the United States and one near Victoria, British Columbia. Three birds were seen in southern California in May. June produced two records from central California and one each in Oregon and Victoria, B.C., and July showed two more birds in California and two more off Oregon. All but one record (July, Farallon Islands) were of live birds and most of these were seen from boat trips. The June record from Oregon was of a summer plumage bird seen sitting alone on a rock near Newport; it was seen between 0600 and 0630 on two consecutive days and flew off to sea both times.

SPATIAL DISTRIBUTION

These sightings were obviously not winter visitors and we were prompted to examine the reported occurrences of Horned Puffin along the West Coast. Table 1 gives a list of all sightings known to us along the coast of North America south of the 49th parallel.

There are 41 entries in Table 1; 24 from California, 10 from Oregon, 5 from Washington and 2 from Victoria. The California observations are mainly from Point Conception to Point Reyes (17) with 2 from around Humboldt Bay and 5 from southern California. Except for southern California, this distribution is consistent with presumed distribution of observers: thus, Horned Puffins seem less likely to be found south of Point Conception than north of there. Except for an unusual observation of a live bird found at Coulee City, Washington (Larrison and Sonnenberg 1968) which is 225 km from the nearest salt water, all birds were seen on the coast or from boats at sea.

Table 1. Occurrences of Horned Puffins *(Fratercula corniculata)* on the West Coast of the United States. Condition code: *fresh*—dead but in good enough condition to make a good museum skin, or stated in the reference as fresh; *dead*—no data available on condition of specimen; *long dead*—dessicated, fragmentary or decomposed specimen; *alive*—includes incapacitated birds. Plumage code: winter and summer plumages are differentiated only in our own records and in cases where we were able to examine specimens or photographs, or where the condition of the plumage was discussed in the literature. Winter and summer plumages were distinguished largely by cheek color. The term breeding plumage was not used since some summer specimens examined had white cheeks but did not have the full nuptial development of the bill or the grey crown characteristic of breeding birds. Bill condition was frequently impossible to ascertain in photographs and in the field. *Audubon Field Notes* and *American Birds* are abbreviated AFN and AB, respectively.

YEAR	DATE	LOCATION	NO.	CON-DITION	PLU-MAGE	REFERENCE
1914	2-17	Pacific Grove Monterey Co., CA	1	dead	–	Grinnell and Miller 1944
1916	3-7	Netarts Tillamook Co., OR	1	dead	–	Gabrielson and Jewett 1940
1919	1-27	Tatoosh Island Clallam Co., WA	1	dead	–	Jewett et al. 1953
	2-16/23	Samoa Humboldt Co., CA	4	dead	–	Grinnell and Miller 1944
	3-2	Mussell Rock San Mateo Co., CA	1	dying	–	Ibid.
	3-15	Mercer Lane Co., OR	2	dead	–	Gabrielson and Jewett 1940
	5-17	Coast Ways San Mateo Co., CA	1	dead	–	Grinnell and Miller 1944
	5-24	Montara Beach San Mateo Co., CA	2	dead	–	Ibid.
1929	2-22	Del Monte Monterey Co., CA	1	dead	–	Ibid.
	8-25	Santa Cruz Santa Cruz Co., CA	1	long dead	–	Ibid.
1932-33	12-27/2-15	Oregon beaches	hundreds	dead and dying	–	Gabrielson and Jewett 1940
1933	1-22	San Francisco, CA	1	dead	–	Grinnell and Miller 1944
	1-29	Westport Grays Harbor Co., WA	1	dead	–	Jewett et al. 1953
	2-25	La Jolla San Diego Co., CA	1	long dead	–	Grinnell and Miller 1944
1953	11-30	Rockaway Tillamook Co., OR	1	long dead	–	H. Nehls, pers. comm.
1955	5-9	Morro Bay San Luis Obispo Co., CA	1	dead	–	Munro 1957

YEAR	DATE	LOCATION	NO.	CON-DITION	PLU-MAGE	REFERENCE
1956	8-3	San Francisco CA	1	dead	–	AFN 10:407, 1957
1959	2-15	Tillamook Tillamook Co., OR	1	fresh	winter	Alex Walker Collection
	2-19	10 mi. N Newport Lincoln Co., OR	3	fresh	winter	AFN 14:335, 1960
	4-1	Westport, WA	70	fresh	winter	Alcorn 1959
1960	8-14	Rodeo Lagoon Marin Co., CA	1	fresh	–	AFN 15:73, 1961
1964	6-12	Pt. Lobos Monterey Co., CA	1	fresh	–	AFN 18:484, 1964
	August	Pt. Reyes Marin Co., CA	1	long dead	–	AFN 19:73, 1965
	8-12	Victoria, B.C.	1	alive	–	Sealy and Nelson 1973
1966	1-21	Huntington Beach Orange Co., CA	1	alive	winter	AFN 20:460, 1966
1967	April	47° 43'N, 127° 25'W	2	alive	–	Sanger 1972
	6-6	Monterey Bay 6 mi. SW Santa Cruz, CA	1	alive	subadult	AFN 21:602, 1967
	June	Coulee City Grant Co., WA	1	alive	–	Larrison and Sonnenberg 1968
1968	7-21	Cape Lookout Tillamook Co., OR	1	alive	summer	W. Hoffman pers. comm.
1969	8-5	Florence Lane Co., OR	1	fresh	winter	AFN 24:86, 1970
	8-18	Pacific Grove, CA	1	long dead	imm.	AFN 24:91, 1970
1971	6-1	19 mi. SE San Clemente I., CA	1	alive	–	AFN 25:801, 1971
1973	5-13	Santa Cruz I., CA	1	alive	molting?	AB 27:821, 1973
	5-20	Santa Barbara I., CA	2	alive	–	Ibid.
	6-2	Off Farallon Is., CA	1	alive	–	Ibid.:915
	6-10	6 mi. W Golden Gate, CA	1	alive	–	Ibid.
	6-20/21	On Yaquina Head Lincoln Co., OR	1	alive	summer	Ibid.:910
	6-27	Victoria, B.C.	1	alive	–	Ibid.
	7-14	3 mi. off Humboldt Bay Humboldt Co., CA	1	alive	–	Ibid.:915
	7-16	10 & 35 mi. off Newport Lincoln Co., OR	2	alive	summer	Ibid.:910
	(summer)	On Farallon Is., CA	1	dead	–	Ibid.:915

Two entries deserve special mention. Alcorn (1959) reports 70 Horned Puffins dead on the beach near Westport, Washington on 1 April 1959 and Gabrielson and Jewett (1940) report "hundreds" washed up on the Oregon beaches from the end of December 1932 through the middle of February 1933. In both of these events large numbers of Tufted Puffins *(Lunda cirrhata)* were found also and in 1932-33 Parakeet Auklets *(Cyclorrhynchus psittacula)*, Ancient Murrelets *(Synthliborhamphus antiquus)* and Black-legged Kittiwakes *(Rissa tridactyla)* were also recorded in exceptional numbers. These occurrences may have resulted from major failures of the birds' food supply in the normal wintering areas. Other than these special occurrences the records are mostly of individual birds.

TEMPORAL DISTRIBUTION

The distribution in time of occurrences of Horned Puffins, as shown in Table 1, requires more discussion. The bird was reported in 3 of the 6 years from 1914 through 1919; was unreported from 1920-1928; found in 3 of the 5 years, 1929-1933; and unreported for the 19-year period, 1934-1952. Sightings were then reported in 12 of the 21 years, 1953-1973. Although we have examined only the data through 1973, we understand there have been sightings in both 1974 and 1975. Including these years then, Horned Puffins have been reported in 8 of the last 10 years; only 1970 and 1972 have failed to produce sightings.

There was a slight tendency for multiple occurrence in those years when the bird was sighted. In 9 of the 17 years of reported occurrences, more than one bird was found. The years 1919, 1933, 1959 and 1973 might be termed "invasion" years; in each of these years, more than 10 birds were reported, whereas no more than 4 were reported in any other year.

It is quite probable that the recent increase in sightings results from an increase in the number of observers, particularly since off-shore boat trips are becoming more popular. Low numbers of observers may have contributed to the 9-year gap between 1920-28, but it seems less likely the explanation for the 19-year gap, 1934-52.

Furthermore, there appears to have been a distinct shift in the seasonal occurrence between the 1914-1933 period and the 1953-1973 period. In the earlier period (counting the 1932-33 washup on the Oregon beaches as 3 separate occurrences in late December, January and February) 13 of the 16 sightings were in the cold season, late December through March, whereas in the more recent period, 20 of 26 sightings were in the months May-August, 4 were in January-February and one each was in November and April. (The April sighting was made about 225 km from land off the Washington coast and the only other April record is of 70 dead birds on 1 April, which could be ascribed to March.

The November record is of a long-dead bird on the Oregon coast and is the only record we found between the end of August and the end of December). On the basis of these records it can be argued that Horned Puffins changed their pattern between these periods and are now summer visitors to the West Coast.

This hypothesis needs further examination, however. An argument could be made that a few Horned Puffins are well off-shore in all seasons except fall. Winter occurrences of beached birds are more likely than summer ones because winter is the season of most frequent storms which could disable the birds and wash them up. Furthermore, many of the recent summer sightings are from boats and it is certainly true that off-shore trips are much more frequent in the warm season and in recent years. This argument (which does not explain the 19-year hiatus) is not supported, however, by the records of dead birds or live birds known to have been seen on the mainland. All the records in the 1919-1933 period were of dead or dying birds. (The first record of a bird not dead or dying is from August 1964.) Since 1953 only 4 records of dead birds have been from the cold season, and these were all prior to 1960, whereas there are 8 records of dead birds and 2 of live birds on the mainland since 1953. Thus, a change in pattern of behavior does seem to have occurred.

If the pattern of occurrences shown in Table 1, mainly winter records 1914-1933, absence 1934-1957, mainly summer records 1953-1973, is truly representative of the Horned Puffin's behavior, what has caused the change? We do not have a definite answer but it is certainly possible that it lies in changes in the climate and the oceans. Oceanographers and meteorologists are beginning to recognize anomalies in oceanic temperatures and atmospheric circulations (e.g., Namias 1969) that may last for a decade or more. Wickett (1967) has discussed the effects of large-scale disturbances in the atmosphere-ocean system on the biological processes in the North Pacific. It is quite possible that *F. corniculata* is responding to some such change. The problem deserves further attention; anomalous behavior of the oceans and atmosphere should be considered by students of the distribution of marine birds.

ORIGIN OF WEST COAST BIRDS

One final point remains to be discussed here—where do the Horned Puffins on the West Coast come from?

Grinnell (1938) hypothesized that the birds found south of Canada were carcasses of birds that died or became incapacitated in the north and whose bodies were carried south by ocean currents. Apart from the problem of carcasses remaining intact long enough to make the journey to southern California, the ocean circulation does not provide

currents flowing in the proper direction. There is a broad eastward flowing current (the North Pacific Current) south of the Aleutian Islands which divides near the Washington coast. The northern branch flows northward along the British Columbia-Alaska coast and the southern half flows south becoming the California Current. Unless a bird was sufficiently far south, i.e. below the U.S.-Canada border, it would not be carried into U.S. waters. Furthermore, the near-shore circulation along the northern California-Oregon-Washington coast is to the north in winter. Thus, to be washed up on the West Coast, the birds would have to be fairly far south in the first place and in the correct season.

It is tempting to assume the West Coast birds come from the breeding colonies in southeast Alaska. Sealy and Nelson (1973) discuss briefly the probable origin of the Horned Puffins found in the Queen Charlotte Islands and other British Columbia locations. They feel the summer birds are likely to be wanderers from the Alaskan breeding colonies on Forrester Island but point out that the birds found further south need not come from there, particularly in spring and winter. Certainly the birds found off our coast in spring and early summer are not post-breeding wanderers.

These authors point out our lack of knowledge of the bird's wintering habits. They cite some authors who feel the Horned Puffin does not migrate and is never found far from land and others who report wintering birds well off-shore. Thus, Hamilton (1958) observed "scattered individuals of the species over a wide area across the Pacific" between latitudes 40° and 48° N. M. T. Myres (pers. comm.) indicates that Horned Puffins are occasionally seen at Ocean Weather Station "P" (50° N, 145° W) and H. Oji (pers. comm.) found Horned Puffins, as well as Thick-billed Murres *(Uria lomvia)* wintering in numbers well south of the Aleutians in the western North Pacific. Further evidence for occasional wide dispersal is found in Clapp and Woodward (1968) who reported about 35 Horned Puffins beached on the Leeward Islands of Hawaii between January and March 1963. These observations, together with the fact that the congeneric Common Puffin *(F. arctica)* of the North Atlantic is considered the most pelagic of the Atlantic alcids (Tuck 1961), suggest that *F. corniculata* may well winter over a wide latitude range in the Pacific. Thus, there are likely to be a number of birds wintering at the latitudes of the West Coast and it is, therefore, quite possible that our birds are wind blown, non-breeding adults from the central North Pacific.

Some other evidence for the use of a route from the Bering Sea-central Aleutians area to the West Coast can be found in the extralimital dispersal of the Red-legged Kittiwake *(Rissa brevirostris)* and the above-mentioned Thick-billed Murre. The kittiwake breeds on the Komandorskie and Pribilof islands and normally winters in the adjacent waters

(AOU 1957). However, of four published extralimital records, three are from Oregon beaches (Gabrielson and Jewett 1949, Munro 1953, Walker 1955). Another sighting was reported from the Washington coast during the winter of 1973-74. In recent years, Thick-billed Murres have been found several times off the coasts of California and Oregon (Yadon 1970, Scott and Nehls 1974). Since neither bird is apparently known in southeast Alaska, they presumably come from the open Pacific as the Horned Puffin may do.

SUMMARY

The Horned Puffin is now a late spring and early summer visitor to the West Coast of the U.S., appearing sometimes as far south as southern California, whereas previously it was considered only a winter visitor. It still may appear occasionally in winter. The apparent shift of behavior since 1953 may be the result of long term shifts in the atmosphere-ocean circulations but we do not have sufficient data to confirm this now. We also feel it is possible that the birds off the West Coast may come from the Aleutian-Bering Sea population rather than southeast Alaska.

ACKNOWLEDGMENTS

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PATTERNS OF BIRD SPECIES DIVERSITY REVEALED BY CHRISTMAS COUNTS VERSUS BREEDING BIRD SURVEYS

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Continent-wide patterns of avian species diversity have been the subject of much recent attention, especially in comprehensive studies by Cook (1969) and Tramer (1974a). The objective of these and similar studies is to determine what factors of earth history, climate, vegetation structure, resource availability, and population interaction conspire to limit the number of bird species occupying a given region at a given time (see MacArthur 1965, 1972, and Tramer, op. cit., for reviews).

Earlier, we examined the winter pattern of bird species diversity revealed by National Audubon Society Christmas Count data (Bock and Lepthien 1974); Tramer (1974b) conducted a similar analysis for small landbird species. Here we include analysis of the equivalent nesting season endeavor—the U.S. Fish and Wildlife Service's North American Breeding Bird Survey. The objectives of this paper are:

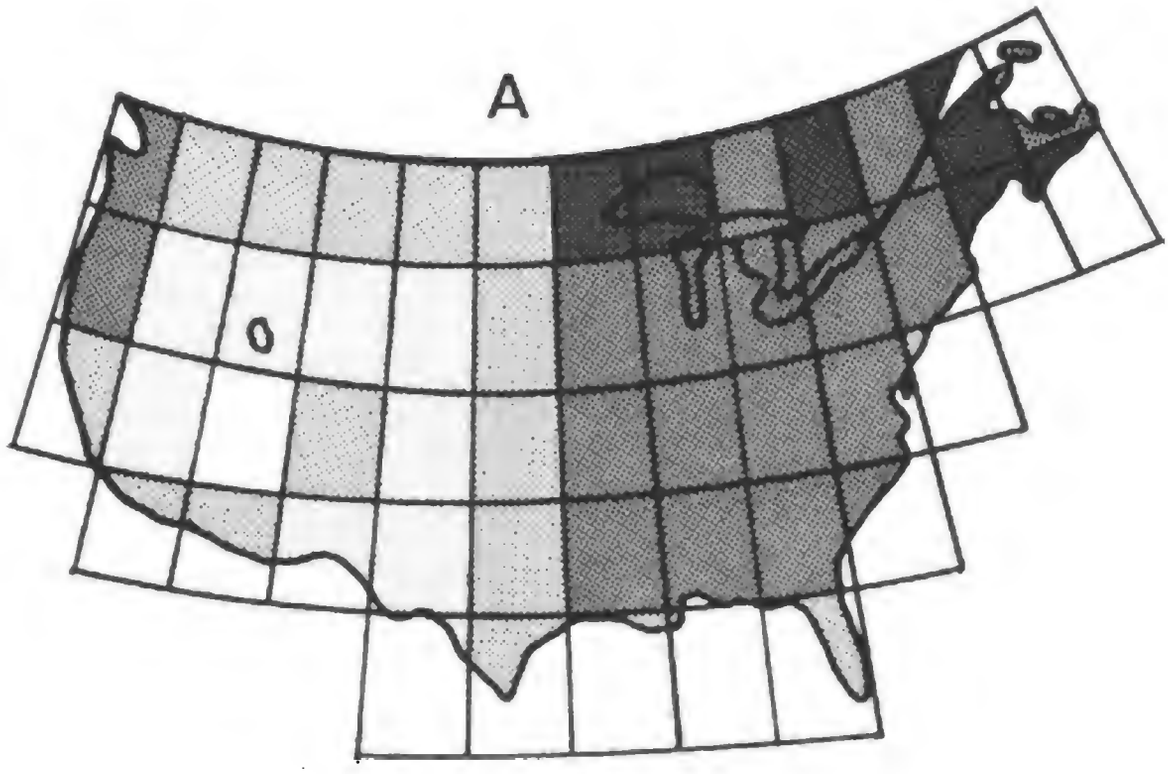
1. to contrast patterns of diversity revealed by the Christmas Counts and Breeding Bird Surveys;
2. to correlate these patterns with climatic variables in a stepwise regression analysis.

METHODS

We grouped Christmas Counts and Breeding Bird Surveys by blocks of 5 degrees of latitude and longitude, and computed the mean number of species seen per census within each block (Figure 1). Data were taken from the 1974 Breeding Bird Survey (n=1563 for the blocks analyzed) and a combination of the 1969-70, 1970-71, and 1971-72 Christmas Counts (n=2743).

Although the effort made on individual Christmas Counts is highly variable, the mean number of species seen per census per block appears to be a reasonable index of diversity (Bock and Lepthien 1974). Tramer (1974b) divided total species by the log of total party hours on each Christmas Count. This probably is the superior method, but his results for small landbirds and ours for all birds were so similar that recalculation of our data seemed unnecessary. Each Breeding Bird Survey is a standardized 2.5 hour roadside census; therefore the number of species recorded should be a good index of relative diversity.

Throughout the study we have analyzed data for all species of birds, because they are so readily available in this form. Cook (1969) ex-



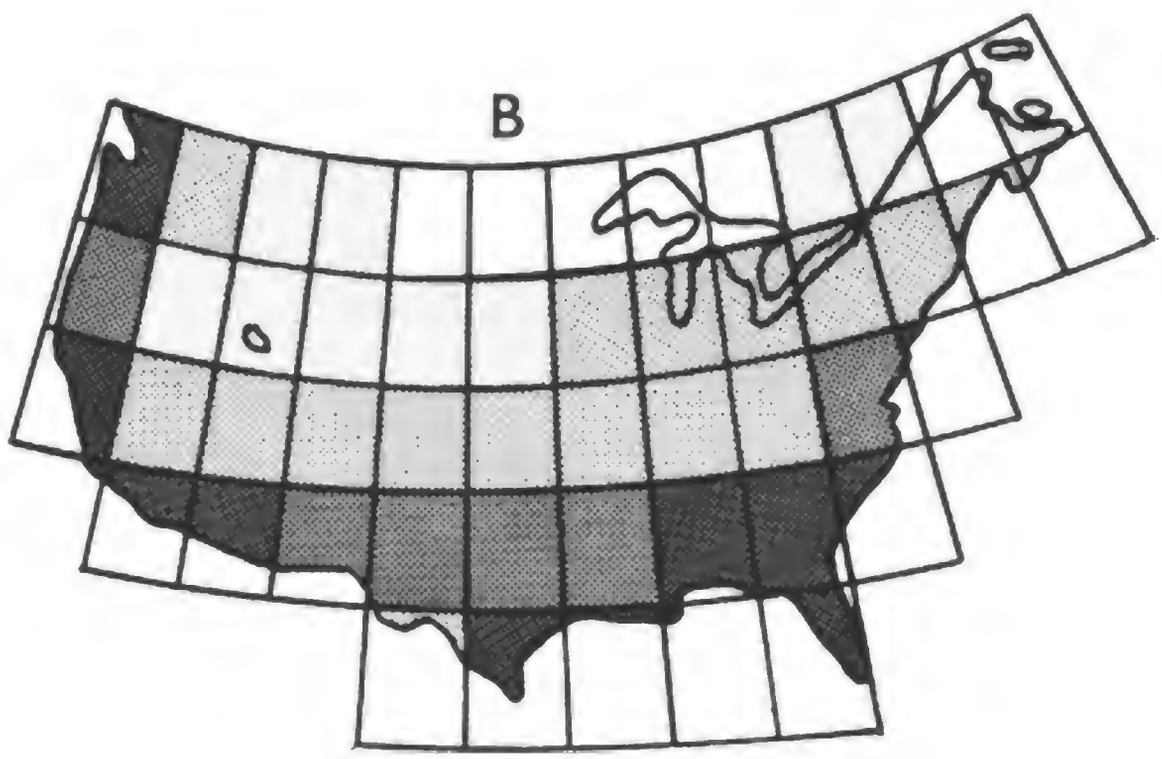


Figure 1A. Average number of bird species observed per Breeding Bird Survey (n=1563), grouped by latitude-longitude blocks. Five degrees of shading represent averages of 20-29, 30-39, 40-49, 50-59, and >60 species per census. Figure 1B. Average number of species observed per Christmas Count (from Bock and Lepthien 1974; n=2743). Five degrees of shading represent<30, 30-49, 50-69, 70-89, and>90 species per census.

cluded strictly marine species, while MacArthur and Wilson (1967) and Tramer (1974a, 1974b) apparently excluded at least marine and freshwater birds. Equivalent studies (Bock and Lepthien 1974 vs. Tramer 1974b for winter diversity; MacArthur and Wilson 1967 vs. Cook 1969 for breeding birds) suggest that the diversity patterns revealed by these species combinations are generally similar.

The patterns shown in Figures 1A and 1B undoubtedly are realistic, but the actual numbers of species seen are comparable only within each census type (see legend), since the effort on nearly all Christmas Counts exceeds that on a Breeding Bird Survey.

Results of the censuses were compared with maps of 50-year climatic means, adapted from the U. S. Department of Agriculture (1941). Correlation coefficients and stepwise regression statistics were computed using the program BMD-02R (Dixon 1971).

RESULTS

Patterns of diversity. Figures 1A and 1B show summer and winter patterns of bird species diversity, as revealed by Breeding Bird Surveys and Christmas Counts. There is a statistically insignificant negative correlation between the two seasons (r=-.10). Some salient features of these maps are:

1. the range of variation is much greater in winter than in summer (see legend);
2. breeding season diversities are highest in the East and Northwest, while in winter, species are concentrated in the Southeast, Southwest, and along the Pacific Slope.

Correlation with climate. Table 1 shows correlation coefficients between total species in winter and summer, and various climatic variables. The winter diversity pattern is strongly correlated with temperature regime, while breeding season diversity is similar to patterns of humidity and precipitation. Stepwise regression was not especially illuminating, probably because of the high inter-correlations between many of the climate variables in the matrix (Table 1); see Mauriello and Roskoski (1974) for a discussion of this problem. For winter bird species diversity, minimum temperature alone gave a coefficient of determination (R^2) of 0.81, with no other variables significantly increasing this value. For breeding birds, mean July humidity entered the regression equation first, giving an R^2 of 0.53; mean January temperature (negative correlation) entered the equation next, and made the only other significant contribution, raising the R^2 value to 0.66. Annual precipitation was highly correlated with breeding bird diversity (Table 1), but did not make a significant contribution to the regression equation because of its high correlation with July humidity (r=0.81).

Table 1. Correlation coefficients between the mean number of species per latitude-longitude block and 50-year means of climatic data, for all blocks at least partially within the United States (N=47); see Figure 1.

CLIMATIC VARIABLE	TOTAL SPECIES COUNTED	
	WINTER	BREEDING SEASON
Mean annual temperature	0.85*	−0.21
Maximum temperature	0.44*	−0.48*
Mean July temperature	0.60*	−0.37*
Minimum temperature	0.90*	−0.15
Mean January temperature	0.87*	−0.25
Number frost-free days	0.89*	−0.14
Annual precipitation	0.42*	0.62*
Summer precipitation	0.21	0.50*
Winter precipitation	0.46*	0.44*
Mean January relative humidity	−0.34**	0.59*
Mean July relative humidity	0.22	0.73*

* $p<.01$
** $p<.05$

DISCUSSION

Originally, we (Bock and Lepthien 1974) carried out a regression analysis of the Christmas Count results using environmental data measured by observers during the counts (e.g., high and low temperatures during the count period). Results showed a strong positive correlation between temperatures and total species seen, but the regression equation accounted for less than 50% of the variation in bird species diversity. In this study we have accounted for 81% of the variation in Christmas Count species totals (averaged by blocks), using the 50-year climatic means of minimum temperature. These results better show the overwhelming impact of general temperature regime upon winter patterns of bird diversity in the United States and southern Canada. This relationship probably is due to the combination of ways in which temperature can affect bird populations. Tramer (1974a:129) correctly stressed "the effects of winter climate regimes on the availability of food." In addition, temperature will affect the energy required for thermoregulation, as well as the diversity and productivity of ecosystems where birds spend the winter.

Moisture regime appears of more critical importance to summer species diversity, as revealed by Breeding Bird Surveys (Table 1).

Humidity and precipitation probably influence breeding bird species diversity largely by increasing the productivity and/or structural complexity of stands of vegetation. This explains the strong east-west gradient seen in Figure 1A, and the high diversities in the moist Pacific

Northwest. The negative correlations between breeding bird diversity and temperature (Table 1) undoubtedly are a reflection of a weak tendency toward higher diversity with higher latitudes in the eastern half of the continent (Figure 1A). Cook (1969) and Tramer (1974a) have discussed possible ecological and historical reasons for this unusual relationship.

Cook (1969), MacArthur and Wilson (1967), and Tramer (1974a) calculated species density patterns across North America using distributional limits to compute the number of species hypothectically occurring in large geographical areas. Both in winter and summer, these diversities appear very high in the mountainous western United States. However, at the level of Christmas counts (15 mile diameter circles) and Breeding Bird Surveys (2.5 hour roadside censuses) these effects largely disappear (Figure 1). Clearly, the high bird species diversities of interior western North America emerge only when vast regions are lumped together.

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SUMMARY

Bird species diversity patterns in the United States and southern Canada were compared using Audubon Society Christmas Counts and data from the North American Breeding Bird Survey. In winter, diversity is highest in the Southeast, Southwest, and on the Pacific Slope; geographical variation is lower in summer, but diversities are higher in the East and the Pacific Northwest. Correlation of bird diversities with climate variables, and regression analysis of these data show winter patterns to be strongly related to temperature regime, while breeding season diversities are more clearly tied to humidity and precipitation variables.

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Sketch by Narca Schor

AVIAN DENSITIES IN A MIXED-CONIFEROUS FOREST, THOMAS CREEK, WHITE MOUNTAINS, ARIZONA

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Few quantitative data are available on avian densities and species composition for mixed-coniferous forest habitats in southwestern United States. Species accounts have been presented by Hubbard (1965), who studied various habitats in the Mogollon Mountains, New Mexico, and Tatschl (1967), who investigated species composition in a mixed-conifer forest in the Sandia Mountains, New Mexico. Other workers have examined avian densities and species composition in a spruce-fir, aspen community in the White Mountains, Arizona (Carothers, Balda and Haldeman 1973); in a fir, pine, aspen forest in the San Francisco Mountain area, Arizona (Haldeman, Balda and Carothers 1973) and in a mixed-conifer forest in the Sierra Nevada (Bock and Lynch 1970). The Thomas Creek watershed in the White Mountains of eastern Arizona contains a plant species community which is different from any of the preceding studies both in plant species composition and in plant densities.

The purpose of this study was to determine avian species composition and breeding densities in the Thomas Creek watershed. These data previously were not available for a plant community comparable to Thomas Creek.

STUDY AREA AND METHODS

The Thomas Creek watershed (390 ha) is located on the Apache-Sitgreaves National Forest, Greenlee County, approximately 72.4 km south of Springerville, on the Coronado Trail, about 1.6 km north of Hannagan Meadow. The terrain varies from flat to steep portions. Mean elevation is 2743 m.

Climate

Mean annual precipitation in Thomas Creek is 71.9 cm. The winter and spring of 1973 were unusually wet, with snow persisting in some sheltered areas until mid-May. From 1 January-31 May 1973, 40.9 cm of precipitation were recorded, which was considerably above the mean for that period (16.8 cm).

Temperature data from an area 8.0 km from Thomas Creek and at an elevation of 2593 m indicated an annual mean daily maximum of 15.0° C and mean daily minimum of -3.9°C. For the months during which breeding acitivites occurred (May-August), the mean daily maximum was 23.3°C with a mean daily minimum of 3.3°C. In May and June freezing nighttime temperatures occurred.

Vegetation

Dominant tree species on the Thomas Creek watershed are Douglas-fir *(Pseudotsuga menziesii)*, Ponderosa Pine *(Pinus ponderosa)*, and White Fir *(Abies concolor)*. Results of the vegetation analysis are given in Table 1. Shrubs such as Arizona Rose *(Rosa arizonica)*, buckbrush *(Ceanothus fendleri)*, and gooseberry *(Ribes montigenum)* occur sparsely in the study area.

Census Method

Densities for each avian species were determined using the Emlen (1971) transect method. This censusing technique involved recording the lateral distance from the transect for each observation and then determining a coefficient of detectability value for each species (for details see Emlen 1971). Advantages and disadvantages of this census method are discussed elsewhere (Franzreb 1976). A transect line 1.21 km in length, was censused weekly beginning 31 May 1973, until 10 August 1973, for a total of 11 censuses. Each census was begun one-half hour after sunrise and was completed within two hours.

Table 1. Vegetation analysis of Thomas Creek watershed, White Mountains, Arizona. Density was determined by the number of trees (DBH ≥20.3 cm) of the species per 0.4 hectare based on a 25 BAF tally. Relative density is the number of trees of a species divided by total of all species and then multiplied by 100. Dominance is defined as the basal area per 0.4 ha (strip census). Relative dominance of a species is the dominance of a species divided by total dominance of all tree species and then multiplied by 100.

SPECIES	DENS.	REL. DENS.	DOM.	REL. DOM.
Ponderosa Pine *(Pinus ponderosa)*	12.6	10.3	24.1	15.4
Southwest White Pine *(P. strobiformis)*	10.6	8.7	17.5	9.2
Alpine Fir *(Abies concolor)*	3.0	2.4	3.1	1.5
Douglas-fir *(Pseudotsuga menziesii)*	34.0	27.8	54.3	30.5
White Fir *(Abies lasiocarpa)*	19.8	16.2	43.3	24.1
Blue Spruce *(Picea pungens)*	5.7	4.7	7.4	3.8
Engelmann Spruce *(P. engelmanni)*	11.6	9.5	12.6	6.6
Quaking Aspen *(Populus tremuloides)*	24.9	20.4	16.8	8.9
TOTAL	122.3	100.0	153.6	100.0

RESULTS AND DISCUSSION

Within the Thomas Creek watershed there were 24 species of birds. Total avian density was 1031.4/100 hectares (Table 2).

Species diversity (H') for the avian population in Thomas Creek was calculated to be 2.61 (base e) using the Shannon (1948) formula and the table of Lloyd et al. (1968).

The majority of bird species found in the mixed-conifer, aspen forests of the White Mountains are summer residents, moving into the area in the summer to breed, and migrating southward or to lower elevations to winter. Environmental factors in a mixed-coniferous forest may influence the arrival and occurrence of some species. For example, a long, wet winter such as that of 1973 may prevent some birds from migrating into the area. Snow remained on sheltered areas at the higher elevations until mid-May and possibly contributed to keeping birds at

Table 2. Densities on breeding birds in Thomas Creek, White Mountains, Arizona, summer 1973.

SPECIES	NUMBER PER 100 HECTARES
Great Horned Owl *(Bubo virginianus)*	14.3
Broad-tailed Hummingbird *(Selasphorus platycercus)*	14.3
Common Flicker *(Colaptes auratus)*	14.3
Yellow-bellied Sapsucker *(Sphyrapicus varius)*	14.3
Williamson's Sapsucker *(S. thyroideus)*	7.0
Hairy Woodpecker *(Dendrocopos villosus)*	7.0
Western Flycatcher *(Empidonax difficilis)*	57.2
Steller's Jay *(Cyanocitta stelleri)*	30.0
Clark's Nutcracker *(Nucifraga columbiana)*	14.3
Mountain Chickadee *(Parus gambeli)*	71.5
White-breasted Nuthatch *(Sitta carolinensis)*	14.3
Red-breasted Nuthatch *(S. canadensis)*	7.0
Brown Creeper *(Certhia familiaris)*	71.5
House Wren *(Troglodytes aedon)*	30.0
Hermit Thrush *(Catharus guttatus)*	42.9
Golden-crowned Kinglet *(Regulus satrapa)*	42.9
Ruby-crowned Kinglet *(R. calendula)*	71.5
Warbling Vireo *(Vireo gilvus)*	142.9
Orange-crowned Warbler *(Vermivora celata)*	14.3
Yellow-rumped Warbler *(Dendroica coronata)*	277.0
Red-faced Warbler *(Cardellina rubrifrons)*	30.0
Western Tanager *(Piranga ludoviciana)*	14.3
Pine Siskin *(Spinus pinus)*	14.3
Gray-headed Junco *(Junco caniceps)*	14.3
TOTAL	1031.4

lower elevations (Monson 1973). Precipitation may play a role in determining both individual bird species densities and total population density by influencing the amount of foliage available in which to forage.

Carothers et al. (1973) noted 17 breeding bird species with a total density of 925.2/100 hectares using the spot-map censusing method (Williams 1936) in a study conducted in spruce-fir, aspen forest at a higher elevation (2937-2959 m) in the White Mountains. The Ruby-crowned Kinglet was the most abundant species (231.6/ha). Carothers et al. observed the Chipping Sparrow *(Spizella passerina)*, Townsend's Solitaire *(Myadestes townsendi)*, and Green-tailed Towhee *(Chlorura chlorura)* which were not found in Thomas Creek. However, several species were found only in Thomas Creek, such as the Yellow-bellied Sapsucker, Williamson's Sapsucker, Hairy Woodpecker, Clark's Nutcracker, White-breasted Nuthatch, Orange-crowned Warbler, and Western Tanager.

The degree of bird species diversity is indicated by H′. This value is influenced by the number of species present as well as the number of individuals of each species. The H′ value for Thomas Creek (H′=2.61, base e) was higher than that found by Carothers et al. (1973) (H′=2.53). It was also higher than reported (H′=2.43) in a coniferous forest in the Sierra Nevada (Bock and Lynch 1970). The bird species diversity may reflect the habitat diversity since a more diverse habitat, in general, is capable of supporting more species and individuals.

SUMMARY

Avian densities were determined in the Thomas Creek watershed, White Mountains, Arizona, during the summer of 1973 by transect method. Vegetation type is mixed-conifer, being predominantly Douglas-fir. Of the 24 avian species breeding in Thomas Creek, the Yellow-rumped Warbler was the most numerous (277 birds per 100 hectares). Total bird density of all species was 1031 birds per 100 hectares. Avian species diversity (H′) was 2.61.

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Williamson's Sapsucker ♂
Narca Schor '76

NOTES

FISH CATCHING BY A BLACK PHOEBE

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On 7 November 1974 John O'Connell and I observed a Black Phoebe *(Sayornis nigricans)* catching fish from one of the Henderson sewage ponds in Las Vegas Wash 3 miles (4.8 km) northeast of Henderson, Clark County, Nevada. As this was a form of behavior neither of us had observed previously in any of the Tyrannidae, we continued to study the bird until it ceased foraging activity.

Conditions for observation were excellent. The sky was clear, the sun was behind us, and there was no wind. We observed the bird for about 20 minutes at a distance of about 50 m.

The bird perched on various bare branches of a Salt Cedar *(Tamarix pentandra)* growing from the edge of the sewage pond. The tree was about 2.5 to 3 m in height. The bare limbs extended over the water about 1 to 1.5 m from the edge of the pond. Perches utilized varied from 0.8 to 1.4 m above the water surface and 1 to 1.2 m from the edge of the pond.

The posture of the perched bird was the same as for normal flycatching activity except that the head was tilted toward the water. On leaving the perch, it flew to the surface of the water, hovered, and attempted to catch fish from a small school feeding at the surface. In these efforts the bill was immersed in the water to the base. The bird made no attempt to plunge into the water, and the feathers remained dry.

After catching a fish the bird would return to a perch in the Salt Cedar and tap the fish against a branch until it ceased to struggle and then consume it, apparently head first. This method is essentially the same as employed by Black Phoebes when handling large insect prey such as dragonflies. During this period of observation the bird caught two fish and also took flying insects on two occasions.

One week later O'Connell observed presumably the same bird engaged in similar feeding activity at the same pond. All efforts to obtain movie film footage of this behavior were unsuccessful.

The only species of fish found in the sewage pond is the Mosquitofish *(Gambusia affinis)*, a small viviparous member of the family Poeciliidae. Adult males attain a length of one inch (2.54 cm), females 2 inches (5.08 cm). A single mating will produce several broods. Depending on size, a female will produce 10-300 young after a gestation period of 21-28 days (McClane 1965). In discussing food of the Mosquitofish, Schrenkeisen (1938) states the species abounds in all kinds of sluggish water and feeds at or near the surface on small insects, insect larvae and crustaceans.

We noted that feeding forays by schools of Mosquitofish created extensive water surface disturbance. Fish breaking the surface of the water appeared much

like water beetles moving across the water. Though the water surface was flat calm, there were so many small schools of these fish feeding simultaneously that the surface disturbance appeared as if it were created by wind action. We believe that the actions of the fish were very similar to those of water insects and probably appeared as insects to the bird.

Though this feeding behavior is unusual, it appears to be widespread among the Tyrannidae, particularly in those species closely associated with water. Binford (1957) observed two Eastern Phoebes *(Sayornis phoebe)* catch a total of seven small fish in Jackson Park, Chicago, Illinois. The upper breast, throat, chin, bill, and forehead of these Eastern Phoebes were observed to contact the water as they attempted to catch the fish. All seven fish were apparently alive when taken, as no floating dead fish could be found.

Oberlander (1939) observed a Black Phoebe catching minnows. In this observation the bird immersed the bill almost to the eyes. Once a minnow was caught, it was handled in the same manner as observed by O'Connell and me. Additionally, Gale Monson (pers. comm.) states that he has observed the Black Phoebe taking water insects during periods of cold weather when flying insect activity was at a minimum. Skutch (1960) states that Black Phoebes were observed to pick floating insects from the water surface without wetting their plumage.

Oberholser (1938) states that small minnows make up a part of the diet of the Eastern Kingbird *(Tyrannus tyrannus)* and Smith (1966) alludes to possible fish catching by the same species. In discussing foraging behavior Smith states that kingbirds *(Tyrannus)* take food from on or below the surface of the water.

Skutch (1960) states that Vermilion-crowned (Social) Flycatchers *(Myiozetetes similis)* sometimes wade up to their thighs in shallow pools to catch small tadpoles that rest in the quiet water, or they may perch above deeper water and fly down to pick some floating edible object deftly from the surface without submerging themselves.

Dickey and Van Rossem (in Bent 1942) report that small fish make up a part of the diet of the Kiskadee Flycatcher *(Pitangus sulphuratus)* and that the bird hovers before plunging into the water. Beebe (in Bent 1942) reports that this species obtains small fish and tadpoles by diving into the water in the manner of a kingfisher. Three dives appeared to be all the species can make before allowing the plumage to dry. Skutch (1960) states this species devours tadpoles and minnows for which it plunges into shallow water.

In regard to another species, Bendire (in Bent 1942) quotes George Seagle in stating that the Eastern Wood Pewee *(Contopus virens)* has frequently been seen taking small trout from ponds, and Oberholser (1938) states that this species catches very small fish in ponds.

Thus it would appear that many of the Tyrannidae with close affinities to a riparian environment can be expected to take fish as a part of their diet. It also appears that the feeding activities of small topwater minnows or Mosquitofish probably appear as insect activity to flycatchers. Further study of this behavior in flycatchers could substantially increase our knowledge and understanding of the food requirements in the Tyrannidae.

The order of species presented in this note follows Eisenmann (1955).

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John O'Connell and Laurence Binford read early versions of this note and made many useful suggestions.

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A CRAVERI'S MURRELET FROM OREGON

JOSEPH R. JEHL, JR., Natural History Museum, P. O. Box 1390, San Diego, California 92112

On 15 August 1975 I made a brief survey for beached seabirds at Siltcoos State Beach, Lane County, Oregon, in the Oregon Dunes National Monument. In traversing two miles of sandy beach I found the remains of only one bird, a Craveri's Murrelet *(Endomychura craveri)*, which I judged to have been dead for about a week. This is the first record for Oregon and extends the post-breeding range of the species northward by some 500 miles. Previously the species had been recorded, irregularly, north to Monterey Bay, California.

The bird, an adult male in worn plumage, showed no evidence of wing molt; body molt, if present, was not detectable due to deterioration. The murrelet's skull had been damaged, presumably by gulls, but the dark face pattern and characteristic long, thin bill were evident. The underwing coverts, which were uniformly dark gray except for a small whitish spot near the axilla, confirmed the identification; the coloration of these coverts matched the darkest extreme shown by the species. (For additional information on morphological variation in *Endomychura* see Jehl and Bond, Trans. San Diego Soc. Nat. Hist. 18(2): 9-24, 1975). The skin was beyond saving but the entire skeleton was retained (San Diego Natural History Museum No. 39533).

Recent offshore field work has provided several post-breeding records of Xantus' Murrelet *(Endomychura hypoleuca)* for the coasts of Oregon and Washington (e.g., Scott et al., Condor 73: 254, 1971; Sanger, Condor 75: 253, 1973; Feinstein, Auk 75: 90-91, 1958; Cowan and Martin, Murrelet, 35: 50, 1954), and it may be that Craveri's Murrelet, too, is not as rare there as we currently believe.

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SIGHT RECORD OF WHITE-THROATED SWIFT ON VANCOUVER ISLAND

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On 18 August 1974 Kirby Smith, Norman A. Williams and I were camped at a small lake at the base of Mt. Colonel Foster on Vancouver Island, British Columbia. As I walked around the lake my attention was drawn to the soft, rapid calls of a group of eight Vaux's Swifts (*Chaetura vauxi*) skimming rapidly back and forth above the surface of the lake. The white throat and white patches extending on to the flanks on either side of the rump of a larger, silent bird with them caused me to believe momentarily that a Violet-green Swallow (*Tachycinata thalassina*) was with them. However, the swift-like flight of this bird and the extension of the white on the throat as a V on to the breast instead of the immaculate white underparts of the swallow quickly identified it as a White-throated Swift (*Aeronautes saxatalis*). I observed these swifts at distances ranging from 6 to 20 m from 1650 to 1705 through 8x40 binoculars as they skimmed the lake and circled over me on the shore. Two Black Swifts (*Cypseloides niger*) were feeding just over the other swifts, providing additional comparison. Besides the obvious dark and white pattern of the White-throated Swift, I was clearly able to see the shallow notch in the tail, and note the size as being larger than the Vaux's Swifts and slightly smaller than the Black Swifts. Williams and I again watched the swifts at close range from 1715 to 1735, but the rapid movements of the birds frustrated our attempts to photograph the White-throated Swift. All three observers saw the White-throated and Vaux's swifts again the next morning, as they were again skimming the surface of the lake.

The White-throated Swift was first discovered in Canada at Vaseux Lake by C. de B. Green in 1907 (Brooks, Auk 26:60-63, 1909). Green's suspicions that they were breeding there were confirmed by G. N. Gartrell in 1917 (Munro, Auk 35:234-235, 1918), and it is now known to breed there regularly, but its usual distribution in British Columbia appears to be confined to the vicinity of the Okanagan Valley (Munro and Cowan, A review of the bird fauna of British Columbia, Spec. Publ. No. 2, B. C. Prov. Mus., Victoria 1947; Godfrey, The birds of Canada, Natl. Mus. of Canada Bull. 203, Biol. Ser. 73, Ottawa 1966). I am not aware of any other record for Vancouver Island, but R. Wayne Campbell (pers. comm. 1974) informs me of two recent records for nearby Vancouver. One was seen by Adrian Dorst on 9 June 1969 off Point Grey. Although Dorst recorded no field notes, he is considered a reliable observer, and thus his record is regarded as hypothetical for the Vancouver area by Campbell. On 22 September 1974 five large swifts with "V-shaped white patch extending down the front" were seen flying together off Point Roberts with Vaux's Swifts and Barn Swallows (*Hirundo rustica*) by Peter R. B. Ward and Stefan Zaremba. The white flank patches were not seen, but it seems unlikely that all five were partial albino Black Swifts. Thus, there are three possible sight records of this swift for coastal British Columbia.

I thank R. Wayne Campbell for information and comments on the Vancouver records, and comments on the manuscript.

A RUFOUS-NECKED SANDPIPER IN SOUTHERN CALIFORNIA

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On 17 August 1974, while enjoying a day in the field with Jon Dunn, Philip Unitt and John Butler, I discovered a Rufous-necked Sandpiper *(Calidris ruficollis)* feeding with other small shorebirds at the south end of the Salton Sea, Imperial County, California. The exact location was at the mouth of the Alamo River about 1 km east of the Red Hill Marina, and the birds with which it was associating were Least *(C. minutilla)* and Western *(C. mauri)* sandpipers. Since the bird was in non-breeding plumage, some comments on its appearance and actions are in order.

When first noticed the Rufous-necked Sandpiper was feeding with Western Sandpipers in shallow water some 50 m out from the shore. I was initially attracted by its very short bill and small headed appearance, so considered it a possible Semipalmated Sandpiper *(C. pusilla)*. The bird looked slightly smaller than the Western Sandpipers, and when it moved onto the mudflats it picked at the surface, rather than probing like a Western Sandpiper, supporting this identification. However, the bill appeared thin and delicate, rather than heavy and thick based, casting some doubt on the initial identification.

As we were discussing the identification of the sandpiper, the bird in question got up and flew off alone to a stretch of shore about 100 m from us. By using the car as a blind, we were able to approach to within 5 m as it fed along the water's

Figure 1. Rufous-necked Sandpiper found at the south end of the Salton Sea, California on 17 August 1974. The short, relatively slender, bill is apparent. The lack of partial webbing between the toes is not evident in the picture, but was noted on occasions in the field.

Photo by John Butler

edge. I was most interested in studying the bird's feet, for Rufous-necked Sandpiper was now being seriously considered. At first it appeared there was partial webbing between the toes, but this was evidently due to mud on the feet, and it soon became evident no webbing was present. At this time we concluded the bird was indeed *ruficollis*, believing the Little Stint *(C. minuta)* unlikely on the basis of range.

In coloration the Rufous-necked Sandpiper closely resembled the adult Western Sandpipers. The back looked gray with conspicuous scaling, a result of pale edgings to the feathers, and the presence of a few rusty edgings on the scapulars was evident at close range. The gray coloration extended up the nape to the crown, but became paler, merging into the white of the forehead. The face was mostly white, but a dusky mark extended from just in front of the eye, through the eye, and back over the ear coverts. The underparts were mostly white, but light gray covered the sides of the breast, forming a partial wash across the breast. The bill, legs, and feet were black, matching those of the Western Sandpiper. In flight the Rufous-necked Sandpiper showed a pattern like that of a Western Sandpiper; however, the white wing-stripe was more prominent, and the scaling on the back was visible.

We kept the sandpiper under observation for about two hours. It fed actively at all times, and aggressively chased nearby Western Sandpipers on three or four occasions. As far as could be determined the bird remained silent throughout the period. A gun was borrowed from Stephen Vehrs, Refuge Manager at the Salton Sea National Wildlife Refuge, and the bird was collected. The specimen is now No. 38887 at the San Diego Natural History Museum. It proved to be an adult

Figure 2. A molting adult Semipalmated Sandpiper at Bar Harbor, Maine, on 18 August 1974. The bird very closely resembles the Rufous-necked Sandpiper. However, the bill is heavier with a thicker base, and the semipalmation is visible between the toes.

Photo by Will Russell

male, weight 20.4 g, and was molting wing feathers. Dr. Joseph R. Jehl, Jr. has examined the specimen and concurs with the identification.

A Rufous-necked Sandpiper in breeding plumage photographed (slide on file at San Diego Natural History Museum) at Crescent City, Del Norte County, on 18 June 1974 (Stallcup and Greenberg 1974) was the first recorded in California, and one photographed at Ashtabula, Ohio on 21 July 1962 (Ahlquist 1964) appears to be the only other individual found in North America outside Alaska.

The Rufous-necked Sandpiper is a breeding bird of northeastern Siberia, migrating to southeast Asia and Australia for the winter (Dement'ev et al. 1951). In Alaska it is known to nest at the western extreme of the Seward Peninsula (Gabrielson and Lincoln 1959, Gibson 1968, Gibson and Byrd 1974b), and has also been found in summer on the north coast at Wainwright (Bailey 1924) and Point Barrow (Gibson and MacDonald 1971; Gibson and Byrd 1972a, 1972b, 1973). Migrants have been found on St. Lawrence Island (Gibson and Byrd 1972b, 1974b), St. Paul Island (Swarth 1927), and on the Aleutian Chain at Adak (Gibson and MacDonald 1971), Buldir (Gibson and Byrd 1974a, 1974b) and Agattu (Gibson and Byrd, 1974a, 1974b) islands. Since the Rufous-necked Sandpiper is a long distance migrant with a tendency to wander (Wallace 1974), additional birds should be looked for along the Pacific Coast of North America.

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OVENBIRD RECORDS FOR OREGON

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ELDON L. MCLAURY, Hart Mountain National Wildlife Refuge, Lakeview, Oregon 97630

According to the AOU Check-list (1957) the breeding range of the Ovenbird *(Seiurus aurocapillus)* extends from northeastern British Columbia, central southern Mackenzie, central Saskatchewan, central Manitoba, northern Ontario, southern Quebec and Newfoundland, south to southern Alberta, eastern Colorado, southeastern Oklahoma, northern Arkansas, northern Alabama and northern Georgia.

Since the publication of the Check-list, four Ovenbirds have been recorded in Oregon. Three were on Malheur National Wildlife Refuge, approximately 32 miles south of Burns, in Harney County. The first state record was a female (USNM 478486) collected 4 June 1961, followed by a second individual captured, banded and released on 13 June 1963 (Kridler 1968). Littlefield captured, banded and released another Ovenbird at the same locality on 19 May 1973. The remaining record occurred 6 June 1970 when a bird landed aboard a fishing boat approximately 5 miles off Coos Bay, Coos County (Crowell and Nehls 1970).

On 1 July 1949 an Ovenbird was found dead beside a road in Moscow, Latah County, for the only Idaho record (Burleigh 1972). Hunn et al. (MS) list three records for Washington. The first record was one collected 15 November 1956 at Spokane, Spokane Co. The other records are one photographed at Richland, Benton County, on 5 June 1972 and another whose song was recorded at Sullivan Lake, Pend Oreille Co., on 16 June 1973.

Austin (1971) reported 48 records for California with spring sightings more common. This is also true in Oregon where all records have been in the spring. He further reported that species breeding east of the Rocky Mountains, such as the Ovenbird, occur more than three weeks after their migration peak in the east. The mean date for spring migration in California is 3 June which is the same mean date in Oregon.

Permanent banding stations established throughout the Great Basin would help determine migration routes and the true status of the Ovenbird and other eastern species. Since 1960 banding efforts have produced several eastern species at Malheur N.W.R. With additional banding sites in Idaho, Oregon, Nevada, Utah, northeastern California and southwestern Wyoming, their migrational patterns and abundance through the intermountain region could possibly be clarified.

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Sketch by Tim Manolis

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