The Imperial Woodpecker, *Campephilus imperialis* (Gould, 1832)

Federico Moctezuma Casillas-Orona

Durango, Dgo., Mexico

June, 2005.

“Extintion is forever …!”

CONTENTS:

I. SUMMARY.

The Imperial Woodpecker, *Campephilus imperialis* (Gould, 1832) is the largest woodpecker ever known. It was endemic from the pine-oak forest on the northwestern mountains of Mexico and can't be said to have been abundant at any time. Now the species is endangered, if in fact still extant, because of shooting them and the harvesting of mature pines in their habitat. Little is known about its biology and ecology (17).

II. INTRODUCTION.

The Imperial Woodpecker, *Campephilus imperialis* (Gould, 1832), is the largest member of the almost worldwide distributed woodpeckers' family (Picidae) (8, 16, 17). It has frecuently been called the Mexican Ivory-billed Woodpecker because of its close relationship with the Ivory-billed Woodpecker, *Campephilus principalis*, which only occurs in or near the Cupeyal Reserve in Cuba, and perhaps somewhere in the southeastern United States swamp forest. But that name causes confusion because of other Mexican woodpeckers, especially *Campephilus guatemalensis*, which are often called "ivory-billed" woodpeckers. The Imperial Woodpecker's most widely used common name in Mexico is "pitorreal", but in the western part of the State of Durango this name is also used for *C. guatemalensis.* Indian names for the Imperial Woodpecker include the Nahuatl name "cuauhtotomi", the Tarahumara name "cumecócari", and the Tepehuan name "uagam" (12, 16).

III. DIAGNOSIS (see figure 1).

The species was described by Gould at the meeting of the Zoological Society of London, held on August 14, 1832. Those specimen's original skins are supposed to be from the Sierra Madre mountains near Bolaños, Jalisco, but there is a little doubt that it is the type locality (7, 13).

The Imperial Woodpecker is a very big one, the world largest. Its length from tip of beak to tail is about 20 inches. The male is blue-black with a pointed flaming red crest, it has a powerful ivory-colored bill; golden yellow eyes; a very long and protractable white tongue; strong gray zygodactil feet (with two toes front and two rear); stiff, spiny tail that acts as prop when climbing; a large white patch on each wing; and a white white "V" on the back are the field marks (8, 13, 14).

Similar species with which it might be confused are the Lineated Woodpecker *Dryocopus lineatus* and the Pale Billed Woodpecker *Campephilus guatemalensis*, but they both are much smaller and have heavily barred underparts (8).

Figure 1. The Imperial Woodpecker Campephilus imperialis. From a watercolor painted for Audubon by Don Eckelberry (9). No photographs exist of this bird (9).

IV. STATUS.

The species is endangered, if it hasn't already become extinct (17). There have been no confirmed reports of the species since 1958, when W. L. Rheim met a Tepehuan Indian on the trail about 62 miles south of Durango city carrying a dead Imperial he had shot. That expired bird on his hand is the last authoritative sighting, according to such woodpeckers experts as James T. Tanner of the University of Tennessee and Lester Short of the American Museum of Natural History (9, 13, 14, 16, 17). It's listed in the red pages of in the Red Data Book of the I.U.C.N. (International Union for Conservation of the Nature and Natural Resourses) and in Appendix I of C.I.T.E.S (1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora) (17). Its precarious status is attributed to shooting and, to lesser extent, to the harvesting of mature pines (16, 17).

V. DISTRIBUTION.

Records of Imperial Woodpeckers were formerly ranged in the pine-oak forests through the Mexican Fisiographic Provinces of the Sierra Madre Occidental and the Eje Neovolcánico Transversal in the Mexican States of Sonora, Chihuahua, Durango, Nayarit, Zacatecas, Jalisco and Michoacán (see figure 2) (16). This original distribution was in such forests, above elevations of 6500 feet in the northern part and 8000 feet in the southern part (8, 16)

VI. HABITAT.

Preferred habitats were mature forests of large pines with many dead trees (16). Goldman (1951) described one such area as an open pine forest with the trees commonly being 50 to 60 feet to the lowest limbs (4, 16). A. S. Leopold stated that the only place he saw an Imperial Woodpecker was in an area in Chihuahua with the tallest pines he had seen in Mexico (16). In areas once inhabited by Imperial Woodpeckers that J. T. Tanner visited in 1962 in mountains of southern Durango, the dominant trees were large pines with trunks up to 30 inches in diameter. The commonest were *Pinus durangensis*, *P. lutea*, *P. ayacahuite*, and *P. montezumae* (identified with the keys of Maximino Martinez, 1945). The biggest pines in these mountains grow at higher elevations (16).

The habitat of the Imperial Woodpecker differs markedly from that of the American Ivory-bill *Campephilus principalis principalis*, which fed to some extent in pines, especially in Florida, but generally preferred swampy forests. The Cuban ivory-bill *Campephilus principalis bairdy*, however is found in pine forests in hilly country (16).

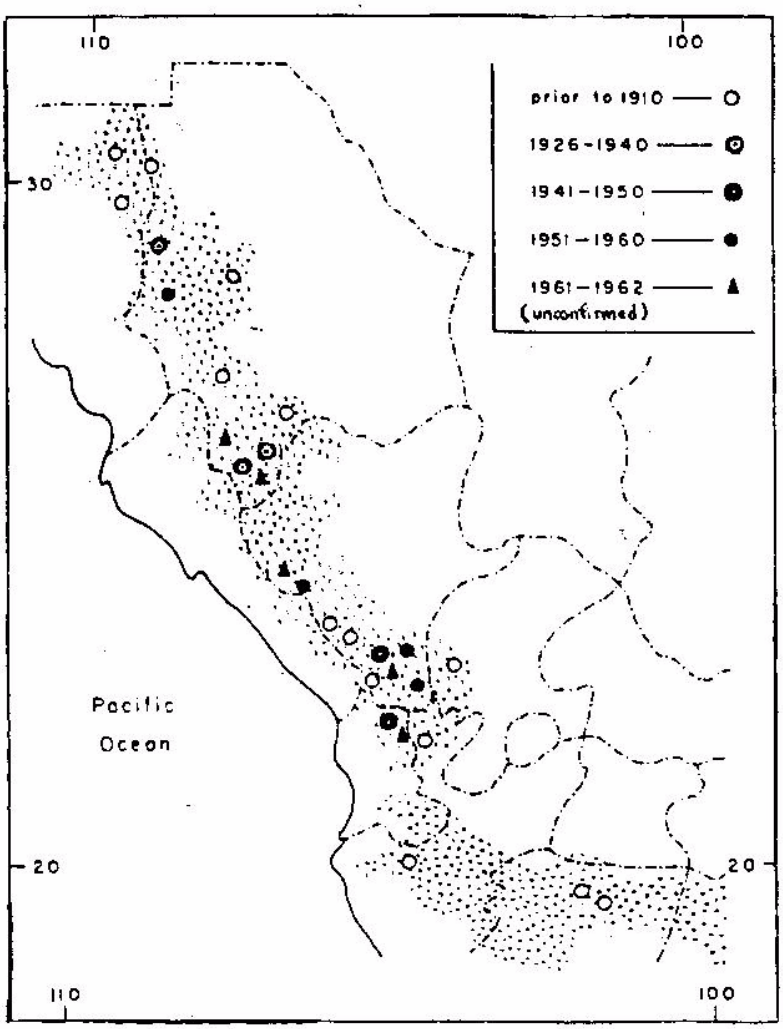

Figure 2. Part of northwestern Mexico with the locations of records of the Imperial Woodpecker. The pattern shows the distribution of the pine-oak forest (Leopold, 1959). The triangular symbols are the locations of Imperials made since 1960. Taken as it is from Tanner, 1964 (16).

VII. POPULATION.

The species cannot be said to have been abundant at any time, although it was surely more so than today. The last substantiated record appears to have been a little more than 30 years ago and if a population survives, it must be exceedingly small (17).

Nelson (1898) said the distance from one group of 5 to another group of 5 or 6 was “a mile or so”, and that approximately 10 miles away was a group of 8 or 10. If the average size of these groups is taken as 6, and the average distance between them as 6 miles, then the assumption can be made that the groups inhabited hexagonal areas with centers 6 miles apart. Thus calculated density is approximately 6 per 30 square miles (7).

Since the birds were observed in pairs, this density is better expressed as 1 pair per 10 square miles. Tanner (1942) estimated the maximum density for the American Ivory-billed Woodpecker to be 1 pair per 6 square miles (16).

That these birds were not exceedingly rare in their proper habitat is suggested by other observations. At least three observers have reported that the Imperial Woodpeckers was “common” or “relatively common” Ridgway, 1887 (10); Bergtold, 1906 (2); Goldman, 1951 (4). When talking with natives of the “Sierra” in southern Durango, Tanner (1962) found that almost all but youngest adults knew the “pitoreal” (16). Long ago, in westcentral Chihuahua one man killed 17 Imperial Woodpeckers in a few months (Smith, 1908) (15). If the birds had the density calculated above, this man would have had to hunt over 85 square miles, which is not unreasonable. In southern Durango, around a new lumbering operation, the inhabitants claimed in 1953 to have shot 12 of the big woodpeckers within about a year (F. K. Hilton, University of Louisville: letter to Tanner) (16). Fleming and Baker (1963) wrote that according to Julio Carrillo, a “meat hunter” supplying deer and other game to workers at La China (a lumber mill operated on lands belonging to the Tepehuan Indians and near the western boundary of the ranch), the birds were widely spaced in the montane country with no more than one pair occuping any one of the large canyons (3).

VIII. BIOLOGY.

The most complete description of the habits of the Imperial Woodpecker, based on observations of the species, is Nelson’s (1898) (7).

Except that Imperial Woodpecker forage primarily on dead pine treets, little is known on their feed habits. W. H. Rhein, Harrisburg, Pennsylvania (letter to Tanner), watched a female knock off big chunks of the

outer bark of a big pine tree, and also saw one or more birds work over fallen logs (16). Fleming and Baker of Michigan State University (1963: 287), were told by Mexican hunters that these woodpeckers tear big pieces of wood from dead pines to obtain large insect larvae in the dead trees. One of these larvae was extracted by opening the side of a dead pine a machete and it was a large cerambycid larva, which the guide called "mezticui". That larva was identified by Roland L. Fisher (Department of Entomology, Michigan State University) as *Ergates Spiculata* Le Conte, a bettle of the family Cerambycidae (3). Lumholtz (1902) wrote that these birds would "feed on some trees for as long as a fortnight at a time, at last causing the decayed tree to fall". The American Ivory-bill obtain most of its food by knocking the bark from recently dead trees to obtain the insects that live between the bark and the wood (6). The observations quoted above indicate that the Imperial Woodpecker feeds to some extent in this manner but differs from the Ivory-bill in feeding extensively in long-dead decaying trees (16).

Nelson (1898) made the only definite nesting records. In Michoacán one nest found in February contained two eggs, and another on the first of March contained newly-hatched young which "in April … had flown" (7). Salvin and Goldman (1895) described a young male killed on May 18, and since it apparently was well-feathered, this also indicates an early nesting date. Fleming and Baker (1983) wrote than one of their guides, Rafael Flores, told them that he had found two young in a nest cavity as late as June (3). Nelson (1898) described a large hole in a dead tree which was evidently an old nesting site of the Imperials. The hole was about forty feet from the ground, in a large Montezuma pine from which the bark had fallen, and judging for the fresh color of the wood within it could not have been over a year old (7). Fleming and Baker (1963) described one felled, dead pine containing three cavities, which their guide reported as being excavated by the woodpecker. The tree was 25 inches in diameter at one foot from its base and 14 inches in diameter 20 paces (approximately 60 feet) "up" from the base and the site of the tree cavities. Twelve feet beyond the cavities, the tree was broken away so that the actual height of the tree could not be ascertained. One cavity was 13 inches deep, 5 inches in diameter at the widest part and 4 inches wide at the entrance. They also found a nest hole occupied by Green Macaws *Ara militaris* which was supposed to have been excavated by the Imperials and subsequently taken over by the macaws (3).

Lumholtz (1902) mentions that the species had one or two young (6). They probably stay with their parents at least until the next nesting season, and perhaps longer, because Nelson (1898) (7) and Lumholtz (1902) (6) reported flocks of 5 to 8 or 10 individuals. Each family group returns each night to its roosting area (Nelson, 1898) (7). They showed considerable attachment to one other and when one was shot the other members of the flock remained scattered about on the trees for a short time calling each other at intervals (Nelson, 1898) (7).

Apparently the Imperials had seasonal movements. Nelson (1898) wrote: "the people united in assuring us that the birds live there (pine-oak forest 150 miles south of Bolaños, in the Sierra de Juanacatlán, western

Jalisco) every summer and it is probable that they lead a more wandering life during the winter months and sometimes absent themselves from their summer haunts; but it is quite certain that they are not in any sense migratory" (7).

Fleming and Baker (1963) were told that apparently the birds flew high and often long distance, from one side of a step cliff to the other, shouting in the canyons (3). Nelson (1898) wrote: "they fly from tree to tree with rather slow, heavy wing strokes similar to those of a crow, and when about to alight, by an added impulse, glide upward along the trunk in a graceful curve and firmly grasp the bark or smooth wood. After a short pause and a glance around, they ascend the trunk in little runs of from one to three feet, with alternating pauses, usually keeping along the main stem of the tree, but when seaching for food sometimes traveling out on the larger branches. At such times they were often seen clinging, back down, to the lower side of the branch, chiseling away with powerful blows. Now and then one 'drums' for amusement upon a resonant branch or much louder and slower than those of other species" (7).

The voice of the Imperial Woodpecker was described by Nelson (1898) as "nasal penny-trumpet-like notes" (7), and Lumholtz (1902) wrote of his "plainitive trumpet sound" (6). A. A. Allen, Cornell University (letter to Tanner), wrote that the single bird he saw and heard sounded like an American Ivory-bill (a high-pitched, nasal "yank") (16). Fleming and Baker (1963) were told its call was loud and heard a long way, up and down the canyons (3).

IX. CONSERVATION.

Vincent (1978) (17) and Tanner (1964) (16) agreed that the Imperial Woodpecker's precarious status can be attributed first to shooting, and second to the harvesting of mature pines.

Imperial Woodpeckers have been killed by man for food and for their supposed medicinal powers. The Mexican Indians and otherwise, living in the Sierra depend upon hunting for much of their meat (16). Tanner (1964) wrote that he saw people hunting there for deer, turkey, and squirrel, although deer and turkey were scarse (16). An Imperial Woodpecker would certanly furnish as much food as a squirrel (16). Lumholtz who traveled through the country of the Tarahumara Indians in the Sierra Madre of Chihuahua, between 1890 and 1900, wrote (1902) that tis woodpecker was "on the point of being exterminated, because the Tarahuamares consider his one or two young such a delicacy that they no hesitate to cut down even large trees to get at the nests. The Mexicans shoot them because their plumage is thought to be benefical for health" (6). Tanner (1964) wrote that according to C. W. Pennington, the Tarahumara also sought the woodpecker because they valued its feathers; these were singed and the resulting fumes sniffed as a stimulant for women in labor pains (16). Bennet and Zingg (1935) studied the Tarahumara in the region of Samochique, Chihuahua, but found that the Imperial Woodpecker had been exterminated in that region by Mexicans who "think that the

feathers, used as ear muffs, are potent in preventing air from entering the head" (16). Two persons told Tanner of a local belief that the bill of an Imperial Woodpecker would "draw" sickness from the body, and that the birds were shot to obtain the bill (16). In the areas Tanner visited in 1962 there was adequate habitat for the woodpeckers, in uncut pine forest and even in areas which had been logged. But in all these areas where there were people, the disappearance of the woodpeckers had followed by a year or so the establishment of the lumber camp or of "ranchitos" in each area. Lumber camps have been brought people into the forest, opened areas to settlement, and provided employment and wages with which firearms could be purchased (16).

Leopold wrote in 1959: "If the present policies of selective cutting are continued, suitable habitat for the Imperial Woodpecker should survive. It would, of course, be highly desirable for some parts of the pine forest of the Sierra to be preserved in their original condition, in some kind of protected natural areas. The presence of the Imperial Woodpecker might well be the criterion for the establishment of such sanctuaries, and this would certainly aid in the preservation of this species and some others too" (5).

"The crucial problems are: first, where is the Imperial Woodpecker surviving yet? and second, how to stop its killing there for food or other uses? Each person living in the Sierra obtains much of his meat by hunting the year around, and will kill anything large enough to eat. Mexico has relatively good game laws, but they are practically unenforceable in these remote regions where the people are living at a subsistence level and dependent in part upon wild cretures. If the Imperial Woodpecker is to survive, some way must be found of convincing the natives of the Sierra that these birds must not be killed" (5), because each species is unique; it's here for the first time, and won't ever come back once it becomes extinct.

X. REFERENCES.

1. AGUILAR-ORTIZ, F. 1979. Aves en Peligro de Extinción en México: un llamado dramático a la investigación para la sobrevivencia. Xalapa, Ver.: Instituto Nacional de Investigaciones sobre Recursos Bióticos. Cuadernos de Divulgación.

2. BERGTOLD, W.N. 1906. Concerning the Thick-billed Parrot. Auk, 28: 425-428.

3. FLEMING, R. L., AND R. H. BAKER. 1963. Notes on the Birds of Durango, Mexico. Ann Arbor, Mich.: Michigan State University., Publs. Of the Museum, 2:273-304.

4. GOLDMAN, E. A. 1951. Biological Investigations in Mexico. Smiths. Misc. Colls., 115: 1-476

5. LEOPOLD, A. S. 1959. Wildlife of Mexico. Berkeley: University of California. (translation by Instituto Mexicano de Recursos Naturales Renovables, Mexico)

6. LUMHOLTZ, C. 1902. Unknown Mexico, 2 Vols. New York: Charles Scribner's Sons. (translation by Instituto Nacional de Antropología e Historia, Mexico).

7. NELSON, E. W. 1898. The Imperial Ivory-billed Woodpecker, *Campephilus imperialis* (Gould) Auk, 15:217-223.

8. PETERSON, R. T., AND E. L. CHALIF. 1973. A Field Guide to Mexican Birds. Boston: Houghton Mifflin Co., pp. 123-124, plate 23.

9. PLIMPTON, G. 1977. Un Gran Pedazo de Carne. Audubon 79 (6): 10-25.

10. RIDGWAY, R. 1887. The Imperial Woodpecker (*Campephilus imperialis*) in Northern Sonora. Auk 4: 61.

11. ROUAIX, P. 1929. Geografía del Estado de Durango. Mexico City: Secretaría de Agricultura y Fomento, Publicación no. 21.

12. SADA, A. M., PHILLIPS, A. R., AND M. RAMOS. 1984. Nombres en Castellano para las Aves Mexicanas. Xalapa, Veracruz: Instituto Nacional de Investigaciones sobre los Recursos Bióticos, Cuadernos de Divulgación (17).

13. SALVIN, D., AND F. D. GOODMAN. 1895. Biologia Centrali-Americana, Vol. 2. Aves. London, England, pp. 443-446.

14. SHORT, L. L. 1982. Woodpeckers of the World. Monographic Series. Num. 4. Delaware Natural History Museum. Foris Publications. Cinnaminson, N. J. pp. 452-622.

15. SMITH, A. P. 1908. Destruction of Imperial Woodpeckers. Condor, 10: 91.

16. TANNER, J. T. 1964. The Decline and Presente Status of the Imperial Woodpecker of Mexico. Auk 81: 74-81.

17. VINCENT, J. 1978. Red Data Book, 2: Birds. Morges, Switzerland: International Union for the Conservation of the Nature and Natural Resourses. First Draft of a Conservation Strategy. Survival Service Commision. (Under Revision).

英名