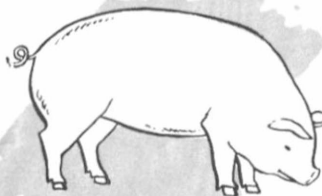
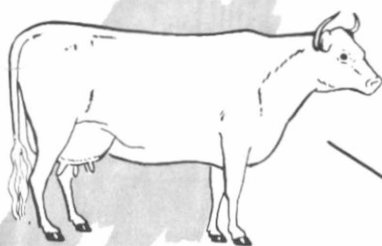


COMMUNICABLE DISEASE CENTER

ZOONOSES

SURVEILLANCE



PSITTACOSIS

- I. SUMMARY
- II. REVIEW OF BEDSONIAE
- III. INCIDENCE OF PSITTACOSIS
- IV. SUMMARY OF PSITTACOSIS REGULATIONS

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HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

PREFACE

Summarized in this report is information received from Health, Agriculture and Wildlife Officials from the various States and their counterparts in the Federal government. Much of the information is preliminary. It is intended primarily for the use of those with the responsibility of disease control activities. Anyone desiring to quote this report should verify the data at its original source for accuracy and interpretation.

Contributions to the Surveillance Report are most welcome. Please address to:

Chief, Zoonoses Surveillance Unit, Communicable Disease Center, Atlanta, Georgia 30333

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I. SUMMARY

Psittacosis, a disease of psittacine birds and man, and ornithosis, the name for the same disease in non-psittacine birds, is caused by one of a unique group of microorganisms collectively called the Bedsonia. There were 79 human cases of psittacosis in the United States in 1963, about one-eighth the number reported a decade ago. These occurred in 19 States and stemmed from three principal sources of infection: pet parakeets, domestic turkeys, and pigeons. The principal reasons for the low incidence of psittacosis in man appear to be effective public health control measures. These include federal and State laws and regulations relating to the shipment of psittacine birds, which are summarized in this report.

II. REVIEW OF THE BEDSONIAE

The psittacosis agent and related organisms are distinctly different from other infectious agents. Their properties vary considerably from those traditionally attributed to viruses, rickettsia, and bacteria. Collectively they have frequently been called the "psittacosis-lymphogranuloma group of viruses." Sir Samuel Bedson first adequately described the psittacosis agent in 1932, and "bedsoniae" seems a logical and descriptive name for this prototype and its close relatives.

The bedsoniae are obligate intracellular parasites. In purified suspensions they show the presence of the nucleic acids, RNA and DNA. They form characteristic clusters of elementary bodies in infected cells and grow well in the yolk sac of embryonated eggs. Finally, very unlike the true viruses, they are susceptible to some antibiotic compounds which act by arresting their multiplication.

When classified by their principal hosts the bedsoniae fall into three groups: human, other mammalian, and avian. Psittacosis, an avian bedsoniae transmissible to man, is a zoonosis. Most of the other bedsoniae are not; but, because they are little known, a brief review of the group is included in this report.

Human Bedsoniae

Trachoma and inclusion conjunctivitis are closely related external eye infections. The former is chronic, often leads to blindness, and is prevalent in all age groups; the latter is acute, self-limiting, and most often affects the newborn or young child.

Trachoma is found in a high proportion of the population in North Africa and the Middle East and is widespread in many Mediterranean countries, the Balkans, Russia, and the Far East. In the United States, the

disease persists among the Indian tribes of the Southwest. The infection often leads to corneal scarring, lid deformities, and occasionally blindness. There appears to be little or no permanent immunity produced since reinfection is common in high-incidence areas.

Inclusion conjunctivitis is usually benign. It may cause conjunctival hypertrophy, follicles, and purulent discharge. It is most common in the newborn, who probably contract it from a cervical infection in the mothers. Genitourinary infections (cervicitis, urethritis) are common and serve as a principal reservoir of the parasite.

Lymphogranuloma venereum has almost world-wide distribution but the reported incidence is low. The disease is usually spread by sexual intercourse, although cases have been acquired by contact with clothing and other contaminated fomites. The disease causes vesicle formation and ulceration on the genital organs. It occasionally spreads to the lymph nodes and may result in a generalized septicemia. The disease in the United States has been reported as most frequent in the eastern States, and more prevalent among Negroes than other races.

Several outbreaks of human pneumonitis with person-to-person transmission have been traced to bedsoniae. The original source of these infections was not determined. The clinical picture is similar to avian-acquired bedsonial pneumonitis.

Other Mammalian Bedsoniae

The majority of mammalian bedsoniae, other than human, can cause pneumonitis or abortion in animals. Over a dozen such bedsonial diseases have been identified, and their natural occurrence is being reported with increasing frequency. The more important ones are outlined below:

Mouse pneumonitis was first found in the U.S. in 1942. This bedsonial infection exists as a low-incidence respiratory disease in certain colonies of laboratory mice. The signs of infection have been described as "popping" respiratory sounds, depression, humped position, and ruffled fur. At necropsy hyperemia, edema, or consolidation of lung parenchyma may be found. Bedsoniae can be demonstrated in tissue smears stained by Macchiavellow's method. Mice from infected colonies are useless for psittacosis diagnostic procedures.

Feline pneumonitis is a high morbidity, low mortality disease of young cats. Clinical signs include sneezing, coughing, and a mucopurulent nasal discharge. Successful therapy with antimicrobials has been reported, and a commercially prepared vaccine is available.

Epizootic abortion of ewes (ovine viral abortion, Stamp disease) was

first described in 1950 in Scotland. It is most common in primigravid ewes and causes abortion during the last trimester of pregnancy. The dam is rarely seriously ill, but the abortion rate in newly infected flocks may reach 30 per cent. In Great Britain where the disease causes considerable loss, the incidence of abortion has been greatly reduced through the use of vaccination. Ovine viral abortion has also been reported from Germany, France, and Hungary. In the United States, the disease has been identified in Idaho and Montana. The results of serologic surveys suggest the occurrence of subclinical disease in flocks of sheep. A single laboratory-acquired human infection has been reported.

Ovine pneumonitis is a bedsonia pneumonia found in lambs and, occasionally, adult sheep. Although common, its true incidence is difficult to determine because secondary bacterial infections frequently mask its presence.

Caprine pneumonitis, which resembles ovine pneumonitis, has been reported in goats in Japan since 1950. Its bedsonial etiology has been confirmed.

Isolated outbreaks of Sporadic bovine encephalomyelitis (Buss disease) have been reported since 1940. These have occurred in Iowa, Texas, California, South Dakota, Minnesota, Missouri, and Germany. The clinical incidence of disease in affected herds is low (1-5%). Young animals are most commonly infected. They suffer from an encephalitis (circling, depression, prostration) often accompanied by a fibrinous pleuritis and associated nasal discharge. Mortality in these cases is high. Although the herd attack rates appear low, this may be an illusion. Serologic surveys have disclosed that 50 per cent of the individual cattle in infected areas have group-specific antibody, indicating that there are probably a great many inapparent or very mild cases for every clinical case.

Epizootic bovine abortion, a bedsonial infection of cattle, has been found in California and in Germany. The disease spreads rapidly in herds, causing abortion in up to 65 per cent of the pregnant heifers. Some calves are born alive, but weak, and die in a few days. Repeated abortions are rare, suggesting the production of at least a partial immunity. The disease was first recognized in California dairy herds in the early 1950's, but recent outbreaks have occurred mostly in beef cattle. A possible factor in this epidemiologic shift may be the rapid growth of the beef cattle industry in California. The shift in dairy herd breeding techniques, from natural to artificial insemination, may also have been influential. Epizootic bovine abortion is now a major cause of prenatal mortality in California beef herds.

The bedsoniae of Bovine pneumonitis, isolated in Japan from lung lesions in imported cattle, may be closely related or identical to the sporadic bovine encephalomyelitis agent.

Bovine enteritis is a mild gastrointestinal bedsonial infection of young calves. The bedsoniae responsible for this disease have been isolated from the feces of calves with diarrhea and also from normal cattle.

Other bedsoniae have been isolated from opossums, guinea pigs with conjunctivitis, and lambs with polyarthrititis. The large number of bedsoniae isolations from mammals provokes a question of epidemiologic importance. Do these observed bedsonial infections stem from a variety of distinct microbial entities, or are they different manifestations of but a few etiologic agents? Immunologic studies have thus far uncovered group specific antigens and failed to differentiate between individual bedsoniae.

Avian Bedsoniae

The disease in man or psittacine birds has become known as psittacosis, while ornithosis describes the same infection in birds other than psittacines. Psittacine birds may have clinical signs of the infection but frequently appear asymptomatic. The same is true for non-psittacine birds, but acute ornithosis is at times a severe disease of turkeys, ducks, and pigeons. The avian hosts of the psittacosis-ornithosis bedsonia may be grouped as follows:

Psittacines. These include parrots of all varieties, cockatoos, macaws, lorikeets, parakeets, and a variety of others. About 80 species of psittacines have been found naturally infected. In the United States, parakeets are the principal source of infection for most human cases. We have approximately 10 to 15 million domestically raised representatives of this Australian species. Most cases of human psittacosis resulting from contact with infected parakeets occur in owners and dealers of these birds. Since 1960 the vast majority of parakeets marketed in the United States have been treated with a 2 week course of chlorotetracycline prior to being marketed. This medication is given in their feed and has been found effective in eliminating the carrier state. Approximately one and a half million parakeets have been treated annually since 1960. This use of antibiotics to reduce the number of avian carriers of psittacosis has undoubtedly contributed to the decline of human psittacosis in the United States.

Turkeys. The domestic turkey is a host for the psittacosis-ornithosis agent. It has occasionally caused explosive outbreaks of ornithosis in both turkey and human populations. This particular host was first recognized in 1952 and is perhaps the second most important source of human psittacosis.

Pigeons. Pigeons were first recognized as carriers of psittacosis-ornithosis in the 1930's. Sporadic human cases occur as a result of contact with these birds. Very large numbers of both wild and domestic pigeons in the United States appear to be infected, but many pigeon strains are of low virulence for man.

Ducks. Bedsoniae have been isolated from ducks in both the United States and Europe. Commercial duck farms in the Northeast have been the source of human cases of psittacosis.

Chickens. A few human cases of psittacosis acquired from chickens have been reported. The disease is rare in domestic chickens which appear to be quite resistant to the infection.

Pheasants. Outbreaks of ornithosis have occurred in captive pheasant populations.

Gulls, egrets, and other water birds. A number of species of birds in this category have been found infected, and a few human cases in the United States have been traced to these natural reservoirs.

III. INCIDENCE OF PSITTACOSIS

During 1963, a total of 79 cases of psittacosis in humans was reported in the Weekly Morbidity and Mortality Report of the Public Health Service. This is equal to the number of cases which occurred in 1962, approximately one-half the annual number reported 5 years ago, and only 15 per cent of the total human cases recorded a decade ago (Table 1).

The 1963 cases occurred in 19 States (Figure 2). A majority of the total cases were reported by three States: Texas (16), California (15), and Illinois (11). The latter two States generally report about the same number of cases each year, but this is not true for Texas. A large number of the Texas cases, as well as 5 of the 6 cases reported from Nevada, resulted from common-source epidemics.

At least 11 of the 16 reported cases from Texas occurred in individuals exposed to ornithosis-infected turkeys in a poultry processing plant. Between April 21 and May 27, 1963, 11 employees of a small turkey processing plant became ill with mild symptoms including chills, dry cough, chest pains, general malaise, and fever to 102° F. Complement fixation tests confirmed the diagnosis of psittacosis. Eight of these cases had onset dates between April 21 and April 28, 1963; 3 cases had onset dates between May 24 and May 27, 1963, thus indicating that there were two separate exposures, roughly one month apart. Epidemiologic investigation by the Texas State Department of Health traced the outbreaks to two separate turkey flocks, one processed on April 11 and the second on May 14. Similar common-source epidemics have occurred previously in this State and account for the occasional sharp increase in the number of psittacosis cases reported annually from this source.

The Nevada outbreak occurred in November. A physician, his wife, and three children became ill. The father developed a severe and extensive pneumonia which persisted for several weeks despite antibiotic therapy. His wife, similarly ill, made a quicker recovery. A 19-year-old daughter was sick for 2 weeks and the two other children for 1 week each. The family parakeet, ill for most of its 2-month life with the family, had died in early November when the five family members were experiencing their first symptoms. It was discarded before the nature of the family's illness became evident.

Figure 1 is a bar graph of the annual number of reported human psittacosis cases for the years 1948-1963. The small number of cases recorded early during this period increased rather sharply in the 1950's and then declined to its current low level.

We have epidemiologic data on the source of infection for 1259 of the 2421 human cases of psittacosis occurring since 1953 (Table 2). Infected parakeets were the host from which the disease was acquired in 747 cases. These are the traditional source of most human infections and do not account for the increased number of cases recorded during the early years of this period. These data suggest that at least part of this increased incidence of psittacosis was due to a recognition of the cases acquired from contact with infected domestic fowl.

When the human cases, on which we have the pertinent data, are grouped by exposure category, we find additional evidence supporting this conclusion (Table 3). The groups commonly found infected, pet bird breeders, dealers, and owners, account for 579 of the 1279 reported cases while an additional 359 cases occurred in poultry processors. These latter individuals were exposed to infected turkeys or other domestic fowl while these were being killed and processed for marketing.

Epidemiologic data on the source of exposure and exposure category in which the case belongs was obtained for 33 of the 79 psittacosis cases reported in 1963 (Table 3). The scant data from this sampling indicate that not all parakeets reaching the public have received a prophylactic course of tetracycline impregnated feed. In addition, the nine cases of human psittacosis traced to pigeons is a reminder that large numbers of these birds are known to be carriers of the psittacosis-ornithosis agent.

A review of the significant milestones in the history of psittacosis in the United States is presented in Figure 3. It begins in 1929 just prior to the major discoveries relating to the etiology and epidemiology of psittacosis. All doubt about the source of human psittacosis cases vanished with the isolation of the causative agent in 1930. This, coupled with numerous epidemics and the high case-fatality ratio, led to regulations controlling the importation of parrots, and later all psittacine birds, in many countries. Since then the discovery of many new avian hosts and related etiologic agents has increased the epidemiologic complexity of the disease. At the same time, however, the introduction of antibiotics

and effective control measures has reduced the public health significance of this zoonosis.

IV. SUMMARY OF PSITTACOSIS REGULATIONS

Federal Regulations Pertaining to Psittacine Birds

International Regulations

Psittacine birds (parrots, parakeets, lovebirds, macaws, and others of the order Psittaciformes) shall not be brought into the United States, its territories, or possessions for purpose of sale or trade. Psittacine birds may be brought in when accompanied by an import permit and under certain other conditions (specified in the regulations) for medical research or zoological parks. Pet birds may be imported as follows:

A. Pets.

(1) A maximum of two psittacine birds may be imported by the owner thereof provided (a) the birds appear to the quarantine officer to be in good health; (b) they are not intended for sale or trade in the United States; (c) not more than two birds are brought in by members of a family comprising a single household; (d) neither the owner nor any member of his family within his household has imported any other birds under this paragraph in the preceding 12 months; and (e) the birds have been in the owner's possession and personal custody for the 4 months preceding arrival, except for any period occasioned by arrival of the owner and birds on separate conveyances or as provided in subdivision (2) of this subparagraph.

(2) A maximum of two psittacine birds that have been in the owner's possession and personal custody immediately before arrival, but for less than 4 months, may be admitted provided (a) other requirements of subdivision (1) in this section are met and (b) upon admission, for a period beginning with their arrival and ending four months after they first came into the owner's possession and personal custody the birds are confined in detention facilities, either at the port of arrival or elsewhere, at the owner's expense and under such arrangements approved by the quarantine officer at the port of arrival as will reasonably assure against transmission of psittacosis. If the owner does not make the necessary detention arrangements before arrival of the birds, they may be excluded unless he arranges for such detention immediately upon their arrival.

B. Return to the United States.

Psittacine birds taken out of the United States may be admitted upon their return if either of the following conditions is met:

(1) Without a permit. The birds may be admitted without a permit upon their return on one or more occasions, if the requirements of subparagraph (A) in this summary are complied with on each occasion.

(2) With a permit. If the requirements of subparagraph (A) of this summary are not fully complied with, they may be admitted provided (a) they are accompanied by a permit for return issued by the Surgeon General, (b) the owner submits a statement certifying his compliance with the terms of the permit and such other information as the Surgeon General may require, and (c) the birds appear to the quarantine officer to be in good health. Application for such a permit may be denied unless the owner of the birds applies for such permit prior to their departure from the United States and the application includes a statement as to the itinerary, the number and description of the birds, and such other information as the Surgeon General may require.

Intranational Regulations

A. No person shall transport or offer for transportation in interstate traffic any psittacine bird unless the shipment is accompanied by a permit from the State health department of the State of destination where required by such department.

B. Whenever the Surgeon General finds that psittacine birds or human beings in any area are infected with psittacosis and there is such danger of transmission of psittacosis from such area as to endanger the public health, he may declare it an area of infection. No person shall thereafter transport, or offer for transportation, in interstate traffic any psittacine bird from such area, except shipments authorized by the Surgeon General for purposes of medical research and accompanied by a permit issued by him until the Surgeon General finds that there is no longer any danger of transmission of psittacosis from such area. As used in this paragraph, the term "area" includes, but is not limited to, specific premises or buildings.

State Regulations for Psittacine Birds

Over half of the States have specific requirements relating to the handling of psittacine birds. Table 5 very briefly summarizes these. More complete information is available in the "Digest of State and Federal Laws and Regulations Governing Psittacine Birds" issued by the Public Health Service. Persons with specific questions on this subject should refer to this publication or responsible officials in the various States.

TABLE I
REPORTED PSITTACOSIS CASES

STATE	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963*
Alabama	4	2	1	1	1	2	-	-	-	-
Alaska	1	-	-	-	-	-	-	-	1	-
Arizona	1	-	1	1	-	-	1	-	1	1
Arkansas	-	2	-	1	-	-	1	-	-	-
California	65	40	56	27	17	17	12	10	10	15
Colorado	20	2	5	4	-	2	1	-	2	-
Connecticut	10	2	5	10	1	7	4	2	6	3
Delaware	5	-	1	-	-	-	-	1	-	-
Dist. of Col.	1	-	-	-	1	-	-	-	-	-
Florida	1	-	-	-	1	-	-	-	-	1
Georgia	6	14	10	11	2	3	-	2	-	3
Hawaii	-	-	-	-	-	-	-	-	-	-
Idaho	-	15	2	4	2	5	-	1	-	-
Illinois	32	40	39	18	7	11	7	7	4	11
Indiana	-	-	5	3	-	-	-	-	1	-
Iowa	10	8	7	5	6	1	-	-	-	-
Kansas	1	2	1	-	1	1	1	-	-	-
Kentucky	-	3	2	-	-	-	2	-	-	1
Louisiana	-	4	2	-	-	-	-	-	-	-
Maine	-	-	3	-	2	5	-	-	-	-
Maryland	4	3	5	5	1	-	-	-	1	-
Massachusetts	13	3	12	5	3	2	2	3	1	2
Michigan	-	1	7	3	5	2	3	2	3	5
Minnesota	16	32	64	36	22	22	4	2	4	1
Mississippi	1	-	4	-	-	1	-	-	-	-
Missouri	5	2	3	1	2	-	-	-	4	-
Montana	6	3	5	2	-	-	-	-	2	-
Nebraska	-	-	-	-	2	-	-	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	6
New Hampshire	-	-	1	-	1	-	-	-	-	-
New Jersey	17	10	2	-	2	-	-	1	1	-
New Mexico	-	2	-	-	1	1	-	-	-	-
New York	34	36	48	24	18	13	9	6	6	5
North Carolina	11	9	75	4	2	-	-	1	3	2
North Dakota	1	3	5	-	-	-	-	-	-	-
Ohio	13	14	13	10	3	1	1	-	1	2
Oklahoma	-	3	-	2	-	-	-	-	-	-
Oregon	5	6	45	15	9	1	3	2	1	1
Pennsylvania	37	15	22	30	9	25	27	6	5	-
Rhode Island	-	1	1	-	-	-	-	-	-	-
South Carolina	3	2	1	1	1	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	1	-	-
Tennessee	5	3	23	7	4	3	8	6	1	-
Texas	201	13	33	6	2	4	-	23	-	16
Utah	-	1	2	7	1	-	1	3	1	2
Vermont	-	-	-	-	1	-	-	-	-	-
Virginia	12	10	18	10	4	-	-	1	-	-
Washington	15	9	25	5	1	1	2	2	-	-
West Virginia	-	-	-	-	-	-	-	1	-	1
Wisconsin	6	18	14	20	22	17	24	18	20	1
Wyoming	2	-	-	-	1	-	-	1	-	-
TOTALS	564	333	568	278	158	147	113	102	79	79

Source: Annual supplements, NOVS and CDC

* Preliminary - weekly reports

TABLE 2
SOURCE OF INFECTION IN 1,259 HUMAN PSITTACOSIS CASES
UNITED STATES, 1954 - 1963*

YEAR	PARAKEETS	TURKEYS	CHICKENS	DUCKS	PIGEONS	OTHER	TOTAL
1954	162	200	34	-	-	5	401
1955	129	3	5	-	-	5	142
1956	128	71	20	21	-	10	250
1957	117	1	2	-	8	4	132
1958	52	24	4	-	-	4	84
1959	58	5	7	-	6	5	81
1960	26	1	2	-	3	2	34
1961	33	27	3	-	1	5	69
1962	27	2	2	-	3	4	38
1963	15	-	-	1	9	3	28
TOTAL	747	334	79	22	30	47	1,259

TABLE 3
EXPOSURE CATEGORIES IN 1,279 HUMAN PSITTACOSIS CASES
UNITED STATES, 1954 - 1963*

YEAR	PET BIRD BREEDER	PET BIRD DEALER	PET BIRD OWNER	POULTRY PROCESSOR	OTHER	TOTAL
1954	26	18	44	201	112	401
1955	6	27	96	6	7	142
1956	9	9	111	96	28	253
1957	8	12	73	-	47	140
1958	1	3	25	21	35	85
1959	3	5	17	4	38	67
1960	-	1	25	1	13	40
1961	1	2	21	27	23	74
1962	2	-	9	3	32	46
1963	-	3	22	-	6	31
TOTAL	56	80	443	359	341	1,279

* From a TOTAL of 2,421 Cases Reported During This Period.

TABLE 4

HUMAN PSITTACOSIS CASES – UNITED STATES 1963
AVAILABLE DATA ON SOURCES OF INFECTION AND EXPOSURE CATEGORIES

EXPOSURE CATEGORIES	SOURCE OF INFECTION								TOTALS
	PARAKEET	OTHER PET BIRDS	CHICKENS	TURKEYS	PIGEONS	DUCKS	WILD BIRDS	NOT SPECIFIED	
PET BIRD BREEDERS									
PET BIRD DEALERS	3								3
PET BIRD OWNERS	12				9	1			22
POULTRY PROCESSORS									
NOT SPECIFIED		1						7*	8
TOTALS	15	1			9	1		7*	33

SOURCE: Epidemiological reports submitted by States to Communicable Disease Center

* Includes 2 laboratory infections – individuals working with live virus

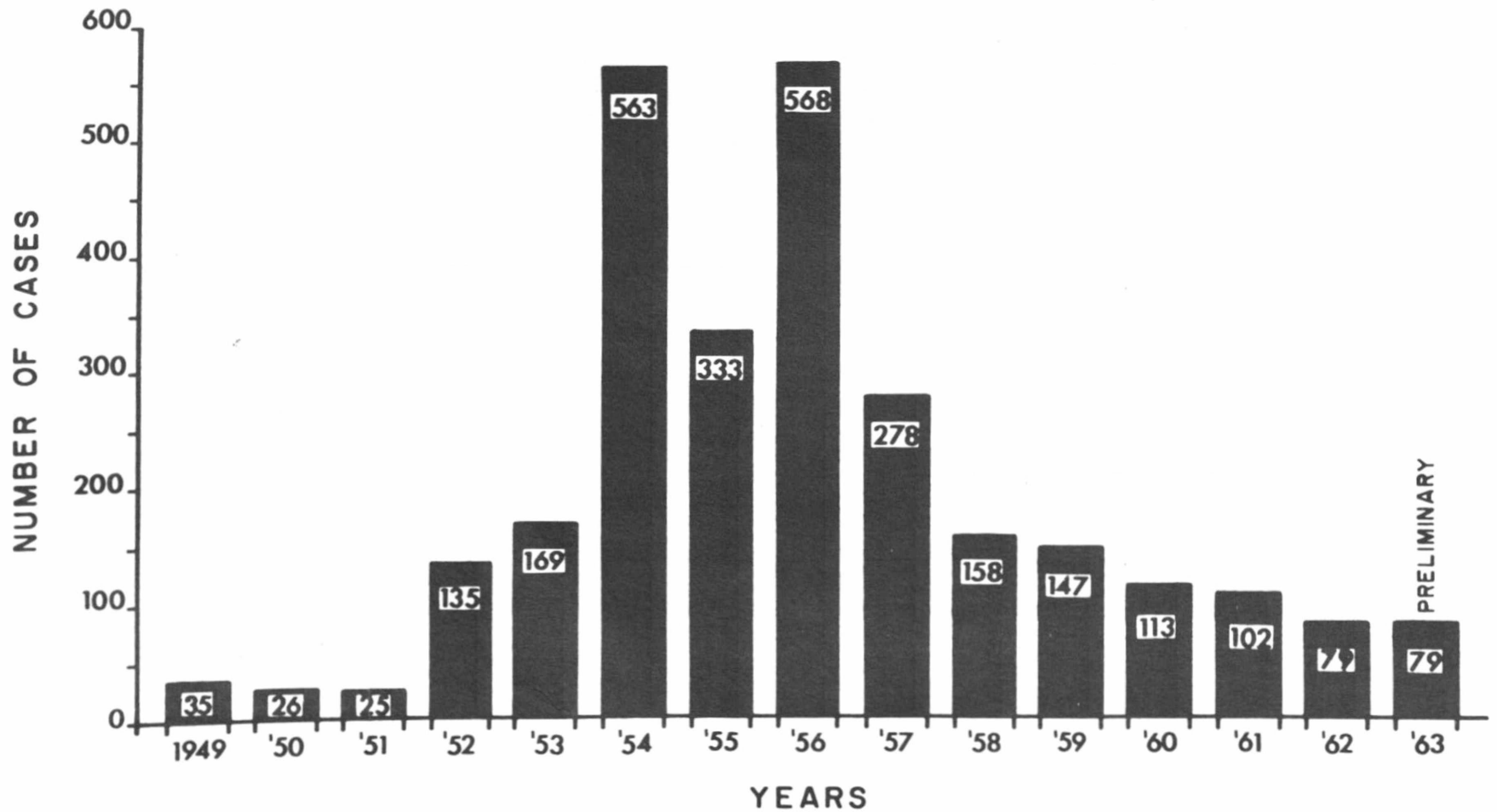
TABLE 5

STATE LAWS AND REGULATIONS PERTAINING TO PSITTACINE BIRDS*

State	Interstate Requirements	Intrastate Requirements
California	Quarantine of imported birds authorized	Banding required
Colorado	Importer licensing, Banding required	Banding required, Dealer licensing
Connecticut	Conn. permit for importation, Banding required	Banding required, Records requirement
Florida	Fla. permit for importation (except 2 or less pet birds)	Quarantine authorized
Georgia	Ga. band required (except 4 or less pet birds)	Banding required, Dealer registration
Idaho	Idaho certificate required of importers	Dealer registration
Illinois	None	Records requirements
Iowa	Health certificate must accompany imported birds	Quarantine authorized
Kansas	Kan. permit for importation, Banding required	Records requirements
Louisiana	Importation records requirements	Dealer registration
Maryland	None	Dealer registration
Mississippi	Banding required	Banding required, Dealer registration
Montana	Importation records requirements	Records requirements
Nebraska	Nebraska permit for importation	None
New Hampshire	State Health Officer requires notification of shipment	None
New Jersey	Health Certificate from originating State required	Records requirements, Quarantine authorized
North Carolina	State Health Officer requires notification of shipment	Records requirements, Quarantine authorized
Oklahoma	Dept. of Agriculture requires health certificate	None
Oregon	None	Banding required
Pennsylvania	None	Records requirements
Rhode Island	Rhode Island permit for importation, Banding required	Banding required, Records requirements
South Carolina	None	Records requirements
Texas	Health certificate must accompany imported birds	None
Utah	Utah permit for importation, Banding required	Banding required, Dealer registration
Vermont	Banding and 15-day quarantine required for importation	Banding required, Dealer registration
Washington	Washington permit for importation, Banding required	Banding required, Records requirements
West Virginia	W. Va. permit required for importation	None

* No laws or regulations pertaining to psittacine birds in unlisted States.

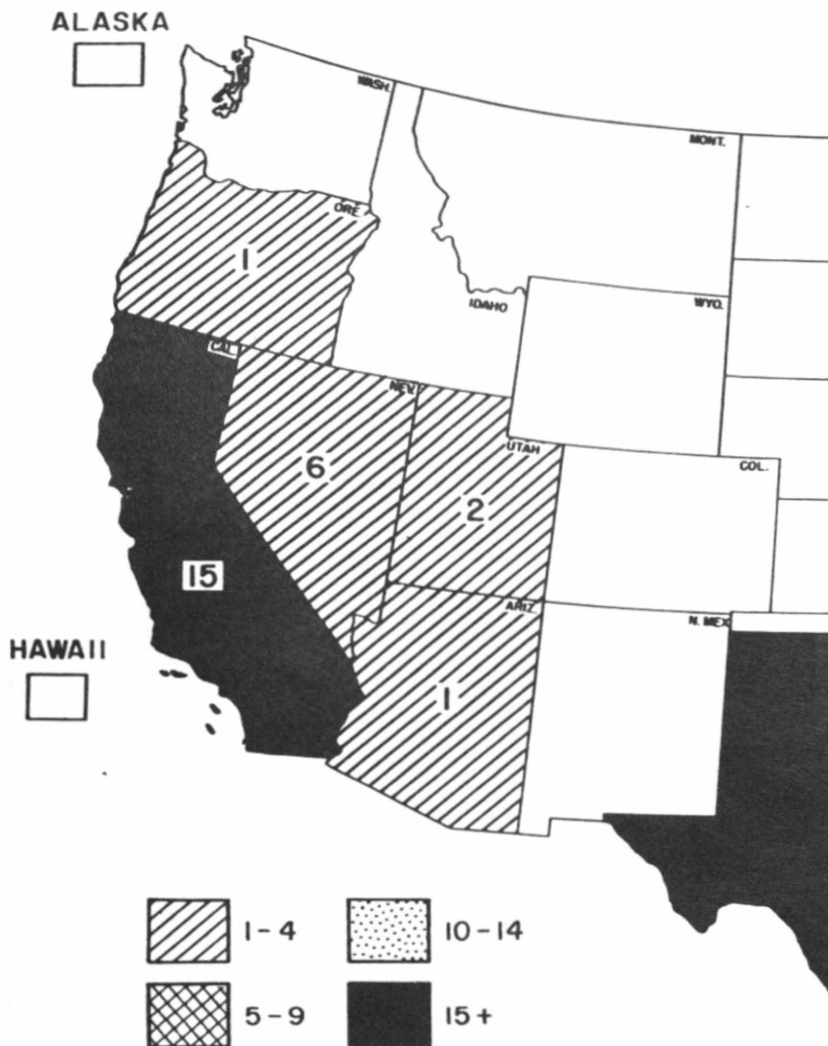
Figure 1
REPORTED HUMAN PSITTACOSIS CASES
1949-1963



SOURCE: NOVS and MMWR
DHEW/PHS/CDC, ATLANTA, GA.

REVISED JULY, 1964

REPORTED HUMAN

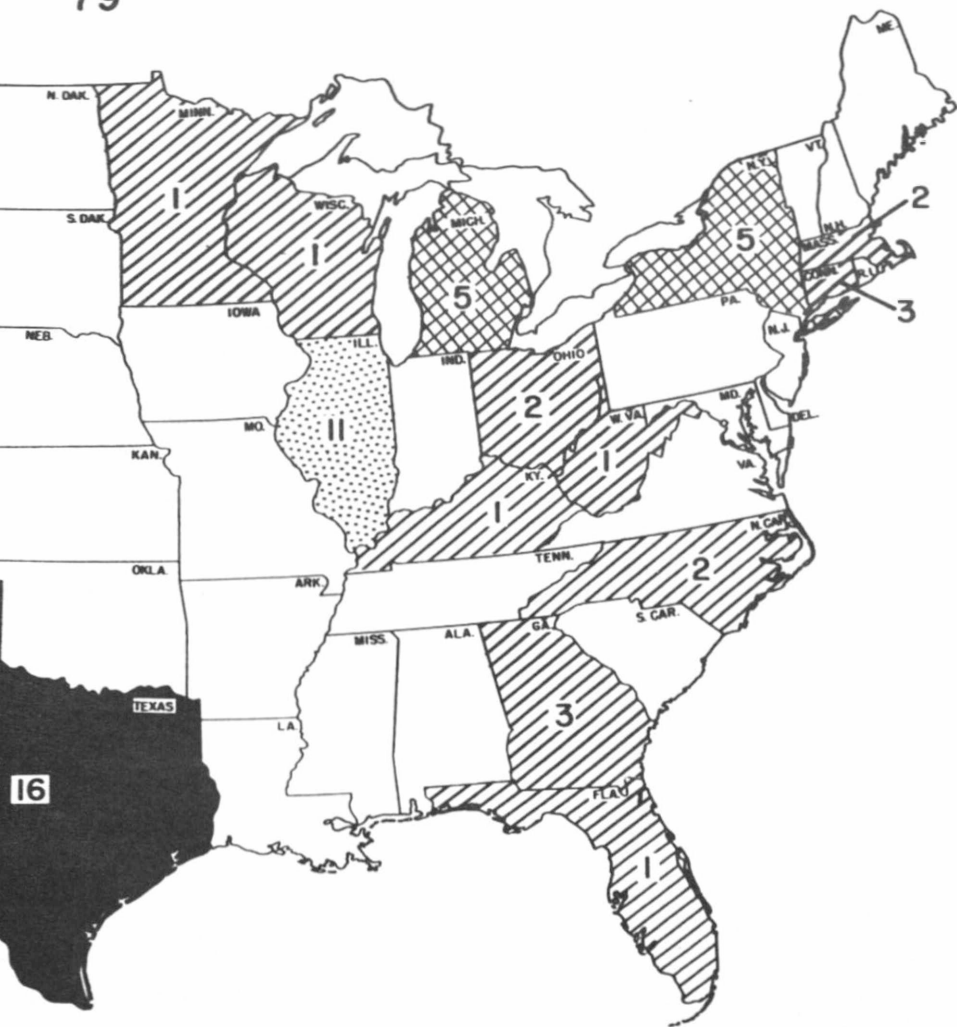


DREW/PHS/CDC, Atlanta, Georgia

Figure 2

PSITTACOSIS CASES - 1963

79*

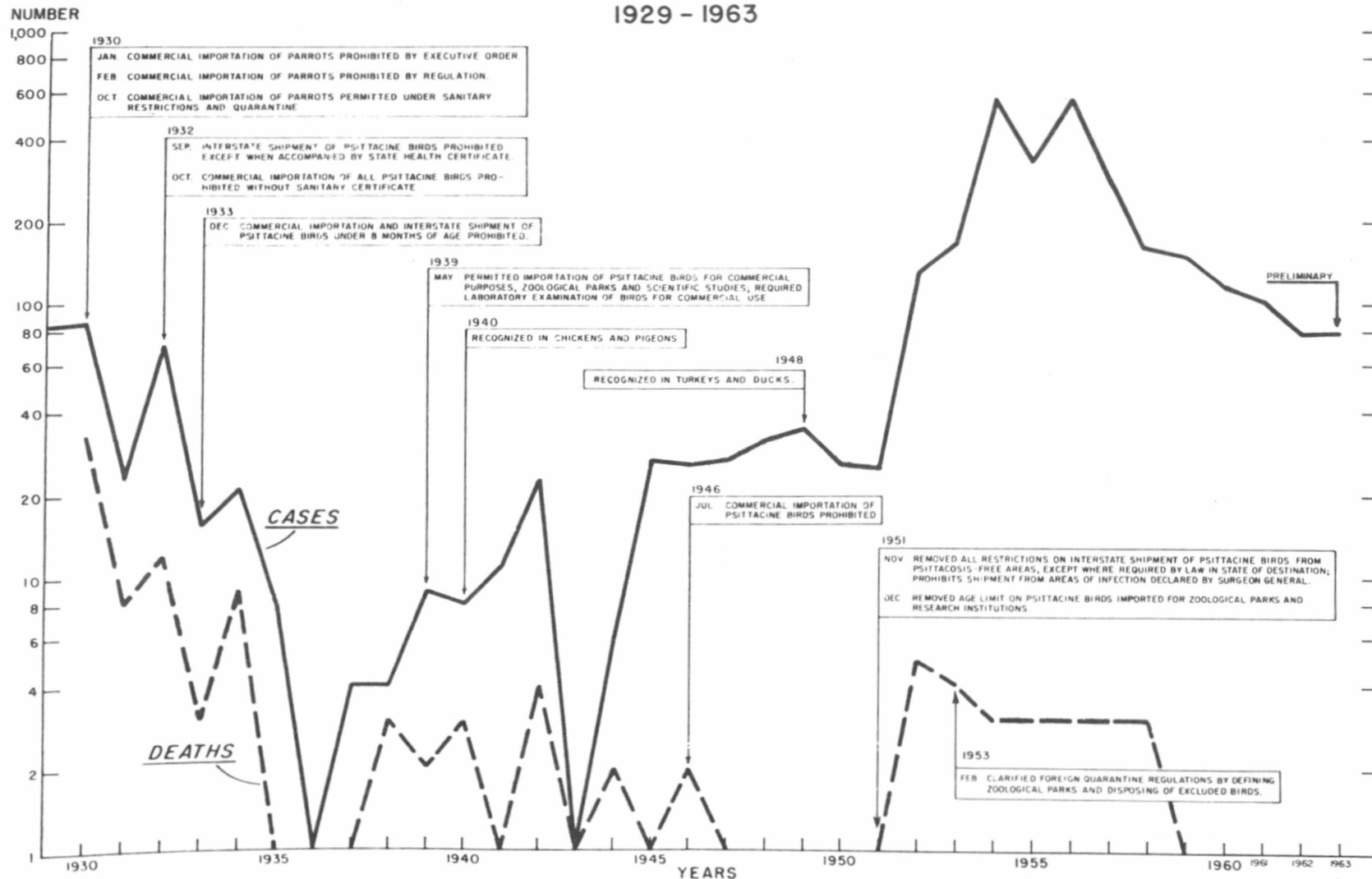


*PRELIMINARY DATA

Figure 3

REPORTED PSITTACOSIS MORBIDITY, MORTALITY, QUARANTINE REGULATIONS, AND RECOGNITION OF DISEASE IN AVIAN SPECIES OTHER THAN PSITTACINES IN THE UNITED STATES

1929 - 1963



SOURCE: DHEW/PHS/CDC

Revised JULY, 1964

Key to all disease surveillance activities are those in each State who serve the function as State epidemiologists. Responsible for the collection, interpretation and transmission of data and epidemiological information from their individual States, the State epidemiologists perform a most vital role. Their major contributions to the evolution of this report are gratefully acknowledged. In addition, valuable contributions to the Zoonoses Surveillance reports are made by the State Public Health Veterinarians. We are greatly indebted to them for their valuable support.

STATE	STATE EPIDEMIOLOGIST	STATE PUBLIC HEALTH VETERINARIAN
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California	Dr. Philip K. Condit	Dr. Ben Dean
Colorado	Dr. C. S. Mollohan	Dr. Martin D. Baum
Connecticut	Dr. James C. Hart	
Delaware	Dr. Floyd I. Hudson	
D. C.	Dr. William E. Long	Dr. George D. Coffee
Florida	Dr. Clarence M. Sharp	Dr. James B. Nichols
Georgia	Dr. W. J. Murphy	Dr. John H. Richardson
Hawaii	Dr. James R. Enright	Dr. John M. Gooch
Idaho	Dr. John A. Mather	
Illinois	Dr. Norman J. Rose	Dr. Paul R. Schnurrenberger
Indiana	Dr. A. L. Marshall, Jr.	
Iowa	Dr. Ralph H. Heeren	Dr. S. L. Hendricks
Kansas	Dr. Don E. Wilcox	Dr. George A. Muller
Kentucky	Mr. J. Clifford Todd	Dr. Ronald L. Hectorne
Louisiana	Dr. John M. Bruce	Dr. Charles T. Caraway
Maine	Mrs. Margaret H. Oakes	
Maryland	Dr. John H. Janney	Dr. Kenneth L. Crawford
Massachusetts	Dr. Nicholas J. Fiumara	Dr. Julian M. Karasoff
Michigan	Dr. George H. Agate	Dr. Donald B. Coohon
Minnesota	Dr. D. S. Fleming	
Mississippi	Dr. Durward L. Blakey	
Missouri	Dr. E. A. Belden	Dr. Edmund R. Price
Montana	Dr. Mary E. Soules	
Nebraska	Dr. E. A. Rogers	
Nevada	Dr. B. A. Winne	
New Hampshire	Dr. William Prince	
New Jersey	Dr. W. J. Dougherty	Dr. Oscar Sussman
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New York City	Dr. Harold T. Fuerst	Dr. Jeroham Asedo
New Mexico	Dr. H. G. Doran, Jr.	*Dr. H. G. Doran, Jr.
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North Dakota	Mr. Kenneth Mosser	
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Oklahoma	Dr. F. R. Hassler	
Oregon	Dr. Grant Skinner	Dr. Monroe Holmes
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Puerto Rico	Dr. Rafael A. Timothee	Dr. Eduardo Toro
Rhode Island	Dr. James E. Bowes	
South Carolina	Dr. G. E. McDaniel	Dr. Frank M. Lee
South Dakota	Dr. G. J. Van Heuvelen	
Tennessee	Dr. C. B. Tucker	Dr. Luther E. Fredrickson
Texas	Dr. Van C. Tipton	Dr. A. B. Rich
Utah	Dr. Elton Newman	
Vermont	Dr. Linus J. Leavens	
Virginia	Dr. James B. Kenley	Dr. Martin Boyd Marx
Washington	Dr. E. A. Ager	
West Virginia	Dr. L. A. Dickerson	
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*These are dual assignments.