ANIMAL HEALTH PICTURE OF THE TERRITORY OF PAPUA AND NEW GUINEA

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THE Animal Health Service of the Territory of Papua and New Guinea has been developed only in the postwar period. The Division of Animal Industry now has seven Veterinarians and four Stock Inspectors, who are responsible for these services.

The Territory of Papua and New Guinea is in a happy position in relation to serious infectious animal diseases which are present in many other countries. In particular, the virus diseases, such as foot and mouth disease and rinderpest of cattle, swine fever of pigs, newcastle disease of poultry and rabies, have never been recorded. Infectious anaemia of horses was present in Japanese horses during the war, but following the destruction of all these animals, it has not been seen again. Contagious bovine pleuropneumonia, a serious problem in Northern Australia, is not present.

Protozoan diseases have been recorded. Tick fever or bovine piroplasmosis was present in New Guinea, and anaplasmosis was seen only in cattle in quarantine *en route* from Pakistan to Australia. In areas where piroplasmosis was recorded the vector of the disease has been eliminated.

The vector of these protozoan diseases, the common cattle tick, *Boophilus microplus*, is present as a legacy from the pre-war importations of cattle from Queensland. The Division of Animal Industry has an active policy of eradication of this organism on a progressive basis until the whole Territory is tick-free. This policy has proved successful in the Highlands Districts, Morobe District and New Britain District in New Guinea and the Sogeri Subdistrict of the Central District of Papua. The major cattle-raising areas of the Territory, with the exception of part of the Central District of Papua, are now tick-free.

Bacterial diseases of public health importance; such as bovine tuberculosis and bovine brucellosis are similarly subject to active eradication programmes. The incidence of tuberculosis in all cattle under test during 1958-59 was 0.062 per cent. The only districts which have not been completely tested are the Morobe and Madang Districts of New Guinea. The disease has been eradicated from the other major areas. Cattle under test in 1958-59 are shown in Table I.

TABLE I

Tuberculosis Testing

District	Number of Animals Tested	Number of Reactors	Percentage
Central	575	Nil	0
New Britain	2,055	Nil	0
Highlands	1,966	2	0.11
Morobe	183	1	0.54
Gulf	37	Nil	0
TOTALS	4,816	3	0.062

Brucellosis has been recorded in all major cattle raising districts, but with only a relatively low incidence. The disease has been eradicated from New Britain District of New Guinea and the incidence in the Highlands Districts of New Guinea and the Central District of Papua has been reduced to such a low level that eradication is imminent. Table II shows the animals under test in 1958-59 by districts :—

TABLE II

Brucellosis Testing

District	Number of Sera Tested	Number of Reactors	No. of Holdings Infected	Percentage
Central	1,132	6	1	0.05
New Britain	3,464	17	1	0.05
Highlands	835	6	1	0.72
Morobe	157	Nil.	Nil.	Nil
Madang	391	14	2	3.58
TOTALS	5,979	43	5	0.72

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A disease which seems unique to the Territory is present in the Highlands Districts. This is an atypical form of anthrax which manifests itself only in pigs. It is enzootic to the Eastern, Western and Southern Highlands and at intervals epizootics of the disease will sweep through sections of the pig population, leaving a trail of dead pigs in their wake. Vaccination with proprietary spore vaccines has helped in field control of the outbreaks, but laboratory tests with the vaccine have been inconclusive. Penicillin will also help in individual cases. Transmission tests with cattle, sheep and horses have been unsuccessful, but guinea-pigs are susceptible. There have never been any recorded cases of anthrax in the native population, even when affected animals have been eaten. This disease is under investigation by officers of the Division of Animal Industry and a complete prohibition on the movement of pigs out of the affected areas limits its spread.

Another disease present in the Territory of Papua and New Guinea, which is absent from Australia, is the infection with screw worm fly larvae. This fly, *Chrysomyia bezziana,* is present throughout the Territory, although at altitudes above 5,000 feet the problem is not as severe as it is in the coastal areas. The larvae have been recorded from cattle, horses, pigs, dogs and cats in all parts of the Territory. The female fly deposits its eggs beside any wound and the larvae, after hatching, burrow actively into the flesh of the host animal. Wounds as small as tick bites have been struck when the fly is active. All the normal station procedures, such as branding, marking and castrating calves, provide wounds for this parasite. New-born calves are struck on the navel and unless treated will be killed by the depredations of the larvae. This disease has meant that the rearing of cattle in this Territory must be undertaken on a much more intensive pattern than in Australia. All animals should be inspected at least every second day so that fresh strikes can be treated before they have caused irreparable damage to the animal. Calving must proceed under close supervision so that each calf can be treated with a preventive ointment.

The recommended control measure for this disease is the spraying of all cattle and horses with an insecticide of long residual effect, such as dieldrin, at intervals of about six weeks. This interval may be reduced in the wet season, when the fly is more active, and increased in the dry season. The interval will depend on the incidence of strikes observed on the animals. Individual fly strikes can be treated by spraying with insecticide. However, a proprietary smear* is available which gives excellent results.

As the climatic conditions of the Territory are conducive to the infestation of animals with internal parasites, management must be introduced which will lower the levels of infestation. The control of internal parasites in pigs and poultry is especially important so that food conversion may be at its highest level. Kidney worm (*Stephanurus dentatus*) is widespread and causes losses in pigs under poor management.

Nutritional disorders and deficiencies have been diagnosed in pigs and poultry, but the knowledge of these diseases in cattle in this Territory is scanty. In many places the rearing of cattle is a very recent introduction and deficiencies which are known to exist from plant and soil analysis have not had time to show themselves in the grazing animal. Iodine deficiency has been demonstrated. Responses have also been obtained from drenches of an iron, copper and cobalt mixture. Cattle become extremely salt hungry and salt licks containing calcium, phosphorus and trace elements are commonly used.

Of considerable importance in this Territory is the failure of British breed cattle to adapt themselves to the hot, humid lowland environment and coarseness of natural pastures in this environment. Introductions have been made of Zebu-type animals for cross-breeding with these British breeds in an attempt to produce a type which will grow well under local conditions.

The following is a list of diseases and parasites of domestic animals which have been diagnosed in the Territory of Papua and New Guinea :—

* EQ335 Screw Worm Smear (I.C.I.).

ANIMAL DISEASES AND PARASITES OF THE TERRITORY OF PAPUA AND NEW GUINEA.

CATTLE	DISTRIBUTION	NOTES
DISEASES :—		
1. Virus :		
Ephemeral Fever (Three-Day Sickness)	Central District Papua	One outbreak March-June, 1959.
Nasal Granuloma	New Guinea	
Papillomatosis	Territory wide	
2. Bacterial :		
Arthritis-PPLO	Papua	
Actinobacillosis	Papua	
Actinomycosis	Papua	
Brucellosis	Territory wide	Under eradication.
Calf diphtheria	Papua	
Foot abscess	Territory wide	
Hepatic abscess	Territory wide	*Corynebacterium pyogenes.*
Keratitis	Territory wide	Infections following importations.
Listeriosis	Papua	
Mastitis	Territory wide	*Strep. agalactiae* *Staph. aureus* *Escherichia coli.*
Pasteurellosis	Papua	
Salmonellosis	New Britain	
Tuberculosis	Territory wide	Under eradication.
3. Spirochaetal :		
Leptospirosis	Papua	Positive titres for *L. pomona.*
4. Fungal :		
Mycotic dermatitis	Territory wide	
5. Nutritional :		
Iodine deficiency	Territory wide	
PARASITES :—		
1. Protozoan :		
Anaplasma marginale	Papua	Cattle in quarantine *en route* Pakistan to Australia.
Babesia bigemina	New Guinea	
Babesia argentina	New Guinea	
Eimeria auburnensis	Papua, New Britain	
Eimeria bovis	Papua, New Britain	
Eimeria zurnii	Papua, New Britain	
Theileria mutans	Papua	Cattle in quarantine *en route* Pakistan to Australia.

CATTLE—*continued*	DISTRIBUTION	NOTES
2. Arthropod :		
Amblyomma cyprium	Territory wide	Also on deer.
Boophilus microplus	Territory wide	Also on deer.
Chrysomyia bezziana	Territory wide	
Chrysomyia megacephala	Territory wide	
Chrysomyia micropogon	Territory wide	
Haemaphysalis sp.	Territory wide	
Haematopinus eurysternus	Papua	
Ixodes sp.	Papua	
Musca vetustissima	Territory wide	
Rhipicephalus sanguineus	Papua, New Guinea	
Sarcoptes sp.	Papua	
Siphona exigua	Territory wide	
Stomoxys calcitrans	Territory wide	
Tabanus sp.	Territory wide	
3. Trematode :		
Fasciola hepatica	Papua, New Guinea	
Paramphistomum cervi	Territory wide	
Paramphistomum cotylophorum	Papua	
4. Cestode :		
Echinococcus granulosus	Papua	One recording in imported cow.
Moniezia expansa	Territory wide	
5. Nematode :		
Bunostomum phlebotomum	Territory wide	
Bunostomum sp.	Territory wide	
Cooperia punctata	Papua	
Cooperia sp.	Territory wide	
Dictyocaulus filaria	Territory wide	
Haemonchus contortus	New Guinea	
Haemonchus placei	Territory wide	
Nematodirus sp.	Territory wide	
Oesophagostomum columbianum	Territory wide	
Oesophagostomum radiatum	Territory wide	
Onchocerca gibsoni	Territory wide	
Ostertagia sp.	Territory wide	
Strongyloides papillosus	Territory wide	
Strongyloides sp.	Territory wide	
Trichostrongylus sp.	Territory wide	
Trichuris globulosa	Papua	

HORSE	DISTRIBUTION	NOTES
DISEASES :—		
1. Virus :		
Equine infectious anaemia	New Britain	In Japanese army horses—not seen since.
2. Bacterial :		
Brucellosis	New Britain	Fistulous withers.
Hepatic abscess	Territory wide	*C. pyogenes.*
Keratitis	New Guinea	
Tetanus	Territory wide	
3. Nutritional :		
Dermatitis	Territory wide	*Leucaena glauca* ingestion.
Plant poisoning (?)	New Guinea	
PARASITES :—		
1. Arthropod		
Amblyomma triguttatum	New Guinea	
Boophilus microplus	Territory wide	
Chrysomyia bezziana	Territory wide	
Chrysomyia megacephala	Territory wide	
Chrysomyia micropogon	Territory wide	
Gastrophilus sp.	Papua, New Britain	Imported horses infected ; does not persist.
Haemaphysalis sp.	Territory wide	
Ixodes sp.	Papua	
Musca vetustissima	Territory wide	
Sarcoptes scabiei	New Britain	
Stomoxys calcitrans	Territory wide	
Tabanus sp.	Territory wide	
Trombicula sp.	New Britain	
2. Nematode :		
Ascaris equorum	Territory wide	
Dictyocaulus arnfeldi	New Guinea	
Draschia megastoma	New Britain	
Gyalocephalus sp.	Papua	
Habronema microstoma	New Britain, Bougainville	
Habronema muscae	New Guinea	
Oxyuris equi	Territory wide	
Strongylus edentatus	Territory wide	
Strongylus equinus	Territory wide	
Strongylus vulgaris	Territory wide	
Trichonema sp.	Territory wide	
Triodontophorus serratus	Territory wide	
Triodontophorus sp.	Papua	

PIG.	DISTRIBUTION	NOTES
DISEASES :—		
1. Virus :		
Enzootic pneumonia	Territory wide	
2. Bacterial :		
Anthrax	Highlands Districts	Atypical type.
Erysipelas	Papua	
Pneumonia	Territory wide	*Pasteurella septica* Haemolytic *E. coli.*
3. Spirochaetal :		
Spirochaetal granuloma	Territory wide	
4. Nutritional :		
Hypocalcaemia	New Guinea	
Iron deficiency	Territory wide	
Vitamin A deficiency	Territory wide	
Zinc deficiency	Papua	
PARASITES :—		
1. Protozoan :		
Eimeria debliecki	Territory wide	
Eimeria scabra	Papua	
Eimeria sp.	New Britain	
Isospora suis	Papua	
2. Arthropod :		
Amblyomma sp.	Papua, New Britain	
Chrysomyia bezziana	Territory wide	
Haematopinus suis	Territory wide	
Sarcoptes scabiei	Territory wide	
3. Nematode :		
Ascarops dentata	Territory wide	
Ascarops strongylina	Territory wide	
Ascarops sp.	New Britain	
Ascaris lumbricoides suum	Territory wide	
Globocephalus urosubulatus	New Guinea	
Globocephalus sp.	New Guinea, New Britain	
Gnathostoma hispidum	Territory wide	
Gnathostoma sp.	Territory wide	

ANIMAL DISEASES AND PARASITES OF THE TERRITORY OF PAPUA AND NEW GUINEA.—*continued.*

PIG.—*continued*	DISTRIBUTION	NOTES
Macracanthorhynchus hirudinaceus	Territory wide	
Metastrongylus apri	Territory wide	
Metastrongylus pudendotectus	Territory wide	
Metastrongylus salmi	Territory wide	
Metastrongylus sp.	Territory wide	
Necator suillus	New Guinea	
Oesophagostomum dentatum	Territory wide	
Oesophagostomum quadrispinulatum	Territory wide	
Oesophagostomum sp.	Territory wide	
Physocephalus sexalatus	Territory wide	
Setaria congolensis	Papua, New Guinea	
Simondsia paradoxa	Papua, New Guinea	
Stephanurus dentatus	Territory wide	
Strongyloides spp.	Territory wide	
Trichuris, trichiura	Territory wide	

SHEEP

DISEASES :—

1. Bacterial :		
Caseous lymphadenitis	New Guinea	*C. ovis.*
Enterotoxaemia	New Guinea	
Foot abscess	New Guinea	
Mastitis	New Guinea	
Pneumonia	New Guinea	

PARASITES :—

1. Arthropod :		
Chrysomyia bezziana	Papua, New Guinea	
Chrysomyia rufifacies	Papua	
Damalinia ovis	New Guinea	
Oestrus ovis	New Guinea	
Sarcophagus sp.	New Guinea	
Stomoxys calcitrans	New Guinea	
Trombicula sp.	New Guinea	
2. Trematode :		
Fasciola hepatica	New Guinea	
Paramphistomum cotylophorum	New Guinea	
3. Cestode :		
Cysticercus tenuicollis	New Guinea	
Monieza expansa	Papua, New Guinea	

SHEEP—*continued*	DISTRIBUTION	NOTES
4. Nematode :		
Bunostomum trigonocephalum	New Guinea	
Bunostomum sp.	New Guinea	
Cooperia sp.	New Guinea	
Haemonchus contortus	Papua, New Guinea	
Nematodirus sp.	Papua, New Guinea	
Oesophagostomum columbianum	Papua, New Guinea	
Oesophagostomum sp.	New Guinea	
Ostertagia sp.	New Guinea	
Strongyloides papillosus	New Guinea	
Trichostrongylus colubriformis	New Guinea	
Trichuris globulosa	New Guinea	
Trichuris sp.	New Guinea	

The sheep population is centred mainly in the Highlands of the Territory of New Guinea.

GOAT

DISEASES :—

1. Bacterial :		
Arthritis (PPLO)	Papua	
Mastitis	Territory wid	
2. Nutritional :		
Iodine deficiency	Territory wide	

PARASITES :—

1. Protozoan :		
Eimeria arloingi	Papua	
Eimeria faurei	Papua	
Eimeria intricata	Papua	
Eimeria parva	Papua	
2. Arthropod :		
Chrysomyia bezziana	Territory wide	
Damalinia caprae	Territory wide	
Linognathus stenopsis	Territory wide	
3. Trematode :		
Fasciola hepatica	New Guinea	
4. Cestode :		
Moniezia expansa	Papua, New Guinea	

GOAT—*continued*	DISTRIBUTION	NOTES
5. Nematode :		
Bunostomum trigonocephalum	New Guinea	
Bunostomum sp.	Territory wide	
Cooperia sp.	Territory wide	
Haemonchus contortus	Territory wide	
Nematodirus spathiger	Papua	
Nematodirus sp.	Territory wide	
Oesophagostomum asperum	New Guinea	
Oesophagostomum columbianum	Territory wide	
Oesophagostomum venulosum	Territory wide	
Strongyloides papillosus	Territory wide	
Trichostrongylus colubriformis	New Guinea	
Trichostrongylus sp.	Territory wide	
Trichuris globulosa	Territory wide	
Trichuris ovis	Papua	
Trichuris sp.	Territory wide	

POULTRY

DISEASES :—

1. Virus :		
Fowl pox	Territory wide	
Visceral leucosis	Territory wide	
Neurolymphomatosis	Territory wide	
2. Bacterial :		
Botulism	Papua, New Guinea	
Coryza	Papua	
Chronic Respiratory Disease (PPLO)	New Guinea	
Pasteurellosis	Papua	
Pullorum disease	Territory wide	
3. Fungal :		
Aspergillosis	Territory wide	
4. Nutritional :		
Manganese deficiency	Papua	
Vitamin A deficiency	Territory wide	
Vitamin B6 deficiency	Territory wide	
Zinc deficiency	Papua	

PARASITES :—

1. Protozoan :		
Eimeria acervulina	Territory wide	
Eimeria maxima	Territory wide	
Eimeria mitis	Territory wide	
Eimeria necatrix	Territory wide	
Eimeria tenella	Territory wide	
2. Arthropod :		
Cnemidocoptes mutans	Territory wide	
Cytoleichus nudus	New Guinea	
Goniocotes gallinae	Papua	
Goniodes dissimilis	Territory wide	
Lipeurus caponis	Territory wide	
Liponyssus gallinae	Territory wide	
Megninia cutitalis	Papua	
Menopon gallinae	Territory wide	
3. Trematode :		
Cotylurus cornutus	Papua	Recorded from duck.
Echinoparyphium paraulum	Papua	Recorded from duck.
Echinoparyphium recurvatum	Papua	Recorded from duck.
Echinostomma recolutum ..	Papua	Recorded from duck.
Hypoderaeum conoideum ..	Papua	Recorded from duck.
Notocotylus atenuatus	Papua	Recorded from duck.
Strigea gracilus	Papua	Recorded from duck.
4. Cestode :		
Davainea proglottina	Territory wide	
Hymenolepsis lanceolata	Papua	Recorded from duck.
Raillietina cesticillus	New Britain	
Raillietina echinobothrida	Territory wide	
Raillietina tetragona	Papua	
Raillietina sp.	Territory wide	
5. Nematode :		
Acuaria spiralis	Territory wide	
Ascaridia columbae	New Britain	Recorded from pigeon.
Ascaridia galli	Territory wide	
Capillaria columbae	Territory wide	
Capillaria longicollis	Papua	Recorded from pigeon.
Capillaria sp.	Territory wide	
Heterakis gallinae	Territory wide	
Ornithostrongylus quadriradiatus	Papua	Recorded from pigeon.
Oxyspirura mansoni	Territory wide	
Tetrameres sp.	Territory wide	
Trichostrongylus tenuis	Papua	

ANIMAL DISEASES AND PARASITES OF THE TERRITORY OF PAPUA AND NEW GUINEA.—*continued.*

DOG	DISTRIBUTION	NOTES
DISEASES :—		
1. Virus :		
Distemper	Territory wide	
Infectious Canine Hepatitis	Papua	Clinical diagnosis—one case.
Papillomatosis	Territory wide	
Venereal granuloma	Territory wide	
2. Bacterial :		
Abscess	Territory wide	
Pneumonia	Territory wide	
Tetanus	Papua	
3. Nutritional :		
Vitamin D deficiency	Territory wide	
PARASITES :—		
1. Arthropod :		
Chrysomyia bezziana	Territory wide	
Ctenocephalides canis	Territory wide	
Ctenocephalides felis	Papua	
Demodex folliculorum var. *canis*	Territory wide	
Heterodoxus longitarsus	Papua	
Ixodes sp.	New Guinea	
Otodectes cynotis	Territory wide	
Rhipicephalus sanguineus	Territory wide	
Sarcoptes scabiei	Territory wide	
Trichodectes canis	Papua	
2. Cestode :		
Dipylidium caninum	Territory wide	
3. Nematode :		
Ancylostoma caninum	Territory wide	
Ancylostoma sp.	Territory wide	
Dirofilaria immitis	Territory wide	
Spirocerca lupi	Papua	
Toxocara canis	Territory wide	
Trichuris vulpis	Papua	

CAT	DISTRIBUTION	NOTES
DISEASES :—		
1. Virus :		
Infectious pneumo-enteritis (Panleucopenia)	Territory wide	
2. Nutritional :		
Vitamin D deficiency	Territory wide	
PARASITES :—		
1. Arthropod :		
Chrysomyia bezziana	Territory wide	
Ctenocephalides felis	Territory wide	
Felicola subrostrata	Papua	
Otodectes cynotis	Territory wide	
2. Cestode :		
Diphyllobothrium erinacei	Territory wide	
Dipylidium caninum	Papua	
Mesocetoides sp.	Papua	
Taenia taeniaformis	Territory wide	
3. Nematode :		
Ancylostoma braziliense	Territory wide	
Ancylostoma caninum	Territory wide	
Dirofilaria immitis	Papua	
Toxocara sp.	Territory wide	

The foregoing list has been compiled from records at the Veterinary Laboratory, Kila Kila, and reports from field veterinary officers of the Division of Animal Industry. Papua refers to the Territory of Papua, including Central, Milne Bay, Northern, Gulf and Western Districts. New Guinea refers to the New Guinea mainland, including Morobe, Madang, Sepik, Eastern Highlands and Western Highlands and Southern Highlands District of Papua. New Britain refers to New Guinea Islands region, including New Britain, Bougainville, New Ireland and Manus Districts.