

**Research and Educational Activities of the Wild Animal Medical Center in
Rakuno Gakuen University—Past, Present, and Future**

Mitsuhiko ASAKAWA and Hiroyuki TANIYAMA

酪農学園大学紀要 別刷 第29巻 第2号

Reprinted from

”Journal of Rakuno Gakuen University” Vol.29, No.2 (2005)

Research and Educational Activities of the Wild Animal Medical Center in Rakuno Gakuen University—Past, Present, and Future

Mitsuhiko ASAKAWA* and Hiroyuki TANIYAMA

(October 2004)

Introduction

Although Rakuno Gakuen University (RGU) was established in 1960 as an institute for studies on agricultural and dairy science (“*Rakuno*” in Japanese means dairy farming), according to the database of *Zoological Record* published by Biosis, RGU produced 77 scientific papers related to wild and/or zoo animal anatomy, physiology, parasitology, and ecology between 1995 and 2003 [4]. This increasing trend in the number of zoological research papers is related to awareness of the need for conservation of wildlife and natural ecosystems, and sustainable development. In addition, a number of students entering RGU are interested in related fields.

The Wild Animal Medical Center (WAMC) was established in April 2004 as part of RGU and to

serve as an animal hospital (Fig. 1). It is funded by the High Technological Project by the Ministry of Education and Culture, Japan. WAMC is not only a core facility for encouraging and supporting progress of wildlife research and educational activities in RGU, but it also co-ordinates research among related societies, government departments and other Universities/institutes.

This paper presents the aims of WAMC and the trends in research and educational activities based on these aims by providing an overview of the papers published through WAMC.

Aims of Wild Animal Medicine

Wild animal medicine is defined as an interpretation of the relationship between natural ecosystems and living body mechanisms. By dealing mainly with livestock, companion and laboratory



Fig. 1 Nopporo Forest Park and Rakuno Gakuen University Veterinary Teaching Hospital (arrow).

animals, veterinary medicine used to place emphasis on the etiology and preventive and clinical aspects of diseases among such animals. However, the advancement of science and technology as well as changes in social needs have resulted in coverage of a broader study area such as human- and environment-related studies. On the other hand, ecology is recognized as an academic discipline targeting nature, that is, the circulation of various substances, interactions among living organisms in natural ecosystems, and so on. Hence, wild animal medicine bridges veterinary medicine and ecology.

To promote this field of science, the Japanese Society of Zoo and Wildlife Medicine (JSZWM) (<http://www.jjzwm.com>; Head Office c/o Dep. Vet. Pathol., Fac. Appl. Biol. Sci., Gifu Univ., Gifu 501-1193, Japan) was established in July 1995. Since then, JSZWM has formed a general assembly that includes annual presentations and symposia by members and foreign guests, and publishes a biannual international journal and newsletter [30].

The following objectives of JSZWM [30] give a better understanding of the aims of wild animal medicine: 1) to establish techniques for treating and rehabilitating injured and/or sick wildlife, 2)

to promote research through the medical treatment of injured and/or sick wildlife, 3) to establish measures against infectious diseases fatal to wildlife, 4) to promote research on the pathogenesis of wildlife diseases, 5) to promote research on zoonotic diseases, 5) to encourage captive breeding of endangered wildlife, 6) to promote research on basic and clinical medicine for wildlife in zoos and aquariums, 7) to interpret interrelationships between population dynamics and the physiological mechanism in wildlife, 8) to promote veterinary school education in zoo and wildlife medicine, 9) to enhance public education to promote a better understanding of wildlife and its importance, 10) to encourage international exchanges in the fields of zoo and wildlife medicine and wildlife conservation, 11) to promote the conservation and management of wildlife populations to preserve biodiversity, and 12) to promote studies to find a way to coexist with wildlife.

Wild Medical Facilities belonging to Veterinary-Schools in Japan

To accomplish the aims of zoo and wild animal medicine in veterinary schools in Japan, related departments and/or research centers were established in Nippon Veterinary and Animal Science



Fig. 2 Rakuno Gakuen University Veterinary Teaching Hospital and Wild Animal Medical Center (arrow).

University, Hokkaido University, Tokyo University of Agriculture and Technology, and Gifu University [29], before 2003. On the other hand, although since 1996, lectures on “Wildlife Zoology”, which include topics such as avian and mammalian ecology, evolution, morphology, physiology, and management, survey methods, epidemiology and so on, have been presented to veterinary students, no laboratory of zoo and wild animal medicine currently exist.

Outline of WAMC

In April 2004, to promote the research and educational activities of zoo and wild animal medicine in RGU [4], WAMC (Fig. 2) was established with the following objectives:

- 1) to provide facilities for sampling infectious pathogens and toxic agents from dead wildlife under the P2 level
- 2) to tentative provide facilities for maintaining injured wildlife for veterinary training and/or sampling
- 3) to provide facilities for research and diagnosis of diseases among wildlife, zoo and aquatic captive animals and exotic pets by zoo vets, university staffs, NGOs and so on, registered with the High Technological Project
- 4) to provide educational facilities for studies of zoo and wildlife medicine and natural history.

Undergraduate education staff (pathology/parasitology/wildlife zoology departments) in the school of veterinary medicine of RGU are involved in the management of WAMC, that is, in coordinating university researchers, zoo veterinarians, national and local government officers, and students, obtaining budgets, making documents, writing and selecting research papers, and so on.

The main building of WAMC is 10 m × 10 m and includes 3 rooms: 1) a ward/sampling room (5 m × 10 m, P2 level), 2) a laboratory (5 m × 5 m), and 3) a meeting room (5 m × 5 m). In addition, a flying cage is under construction by the main building.

To perform the field research and educational activities of zoo and wildlife medicine, it is ideal that such facilities are located in rural areas.

Nopporo Forest Park covers an area of approx-

imately 2000 ha and is located near the main building (Figs. 1 & 2), although it is not the property of RGU. Hence, it is a convenient location for field survey training.

Research Activities

According to the database of *Zoological Record* published by Biosis, of the 77 research papers on wildlife medicine or zoology from RGU published between 1995 and 2003, 37 were epidemiological and pathological survey reports related to parasitic helminths and other pathogens obtained from zoo animals and wild birds and mammals [4]. In addition, most of these belonged to ongoing research projects in RGU, namely 1) the biogeography of host-parasite relationships, 2) the description and analysis of parasitic helminths for development of biological controls against parasitic helminths of livestock, 3) the application of parasitic helminths as biological tags, 4) the morphology, taxonomy and phylogeny of parasitic helminths, 5) infectious experiments of parasitic nematodes obtained from wild mammals, 6) epidemiological or diagnostic notes on parasitosis, 7) the natural history of local government areas focusing on host-parasite relationships as micro natural ecosystems, and 8) the development of educational materials using local and natural host-parasite relationships.

To show the present status and future trends of WAMC, the following provides an outline of our recent research activities, with special reference to published work. The research fields present-



Fig. 3 Sampling procedure from a raccoon in the Rakuno Gakuen University Wild Animal Medical Center.

ed here are divided into 3 types, namely, those involving alien, endemic and captive species.

Alien species: Since the Japanese Government launched a new Act to prevent the destruction of natural ecosystems by alien species, such species have become an increasingly important issue in Japan. However, most veterinarians are not interested in this topic even though the main problems with alien species involve naturalization of exotic pets, which have escaped or been released [14]. Veterinarians or veterinary science, including wild animal medicine, researchers should actively become involved in tackling the problem of alien species, for example, by conducting educational campaigns, implementing management policies in line with animal ethics, developing painless methods of euthanasia for captured pest animals, and by conducting epidemiological surveys of zoonotic pathogens carried by such animals.

We have been conducting epidemiological and ecological surveys of feral raccoons (*Procyon lotor*) in Nopporo Forest Park and adjacent areas since 1995 because this forest is situated next to RGU and because not only the natural ecosystem but also agricultural products of the forest and RGU seem to be affected by these alien terrestrial vertebrates [8, 13, 15, 16, 33]. From mid-April, just after the establishment of WAMC, to July 2004, the total number of raccoons captured in Hokkaido and passed on to WAMC as a result of a co-operative ecological survey with Hokkaido Government and Hokkaido University [1] was over 550 (Fig. 3).

WAMC has also provided results related to parasitological and/or pathoecological surveys of alien reptiles, birds and mammals in addition to its work on raccoons [11, 25, 27, 32].

Endemic species: The following shows the research cases conducted in WAMC with regards to 1) avian and 2) mammalian species.

1) **Aves:** Pathological necropsy surveys of sea eagles and other birds suspected to have collided with blades of wind-powered electric generators in Tomamae-cho, northern Hokkaido, between



Fig. 4 Field survey in Nopporo Forest Park just by the Rakuno Gakuen University Wild Animal Medical Center.

February and April 2004 were performed with financial support from the Ministry of the Environment, Japan [9].

In addition, with the outbreak of avian influenza in Honshu, western Japan, primary tests for avian influenza virus were conducted on 50 individuals from 23 wild avian species in response to the urgent request of Hokkaido Government between February and March 2004. Negative results were obtained from each specimen. Now, we are preparing to set up a database for risk management of infectious disease outbreaks among wild birds as part of a co-operative research project with Hokkaido Government, Hokkaido Veterinary Association, local zoos, RGU and other universities/institutes using hunted or rescued specimens [10, 18, 20, 28, 31].

2) **Mammals:** An understanding of the ecology of parasites present in endemic mammals is essential for the conservation of endemic host-parasite relationships in the Japanese natural ecosystem. Hence, we have been tackling this topic by studying the host-parasite relationships between rodents (sciurids and murids including the genera *Apodemus*, *Clethrionomys*, *Microtus* and *Eothenomys*) and parasitic nematodes [22, 27], and raccoon dogs (*Nyctereutes procyonoides*) and coccidians in Nopporo Forest Park as model cases [23] (Fig. 4). Furthermore, the relationships between helminths and other mammals such as Japanese macaques (*Macaca fuscata*) [26], seals (*Phoca* spp.) [17] and brown bears (*Ursus arctos*) are also being researched [6].



Fig. 5 Educational activity using an alive bird in the Rakuno Gakuen University Wild Animal Medical Center.

Captive species: Parasites or infectious disease samples obtained from zoos and aquariums [7, 12, 24], pet birds [19] and exotic pets [3] have been sent to WAMC for positive diagnosis and epidemiological examinations.

Educational activities

There are several specialized educational systems for studying zoo and wild animal medicine in Europe, Africa, USA and Australia. One of the present authors (Asakawa) holds a Master of Science in Wild Animal Health from the Royal Veterinary College, UK [21], and his experience of taking part in this course has helped provide similar educational activities in WAMC. Wild animal medical training as well as natural history education (e.g., in the form of the museum curator course) (Fig. 5) is available in WAMC; we do not regard zoo and wildlife medicine to be separate from natural history, rather we feel the two benefit each other.

Conclusions

According to this overview of the 29 papers from WAMC published between February and July 2004, it is apparent that research activities are focused on parasitic or infectious diseases/pathogens of zoo and wild animals. Consequently, these results are connected to host ecology, and such educational trends could provide information from micro to macro levels. Furthermore, this research will help wild animal medicine progress as a recognized science in Japan.

Acknowledgements

We wish to thank Profs. Toshiaki Ohya (President of RGU) and Masayoshi Niiyama (Director of RGU Veterinary Teaching Hospital) for reading this manuscript and commenting on it.

References

1. Abe, G., Matoba, Y., Tatsuzawa, S., Asakawa, M., and Ikeda T. 2004. (translated title) [Ecological and ethological relationship between raccoons and raccoon dogs in Nopporo Forest Park, Hokkaido. (2)]. Proceedings of the 51st Annual Meeting of the Ecological Society of Japan, Kushiro, Ecological Society of Japan, 227. (in Japanese).
2. Asakawa, M. 1997. Biogeography of parasitic nematodes obtained from murids in Japan Jpn. J. Zoo Wildl. Med. 2, 35-44. (in Japanese with English summary).
3. Asakawa, M. 2004. An overview of infectious and parasitic disease from exotic pet animals imported into Japan J. Rakuno. Gakuen. Univ., Nat. Sci., 28, 221-231. (in Japanese with English summary).
4. Asakawa, M. 2004. Zoological research activities of Rakuno Gakuen University with overview of references cited in Zoological Record published by Biosis. J. Rakuno. Gakuen. Univ., Nat. Sci., 29, 49-55. (in Japanese with English summary).
5. Asakawa, M., Brazil, M. A. and Chiba, A: 2004. A case report of conservation and wildlife medical activities in Sagata and its proximate lakes and swamps in Niigata-shi, Japan. Wildlife Forum, 9, 1-8. (in Japanese with English summary).
6. Asakawa, M., Ishii, K., Mano, T., Sashika, M., Matoba, Y. and Murata K. 2004. Parasitic nematodes obtained from wild and captive bears (Ursidae) in Japan with special reference to the first host record of the genus *Ancylostoma* from brown bears (*Ursus arctos*) and the measurements of *Baylisascaris transfuga* from captive ursid species. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts),

- The University of Tokyo: 95. (in Japanese).
7. Asakawa, M. and Kitamura, K. 2003. Outbreaks of infectious diseases recorded in zoos and aquariums in Japan with overview of references cited in Journal of Japanese Association of Zoo and Aquarium. J. Rakuno Gakuen Univ., Nat. Sci., 28: 79-84. (in Japanese with English summary).
 8. Asakawa, M., Matoba, Y., Hagiwara, K and Taniyama, H. 2004. (translated title) [An overview of infectious and parasitic diseases of the carnivore in Hokkaido, Japan]. Abstracts of the Meeting of Japanese Society of Mammalogy (Program and Abstracts) held in 2004, Tokyo-Nohgyo University, Tokyo: 113. (in Japanese).
 9. Asakawa, M., Yoshino, T., Aizawa, S., Ono, K., Mizuno, N., Yokota, H., Osa, Y. and Taniyama, H. 2004. (translated title) [Pathological note on the cases of collisions of white-tailed sea eagles and other wild birds with blades of windmill of the generator in Tomamai, Hokkaido]. Abstracts of the Meeting of Japanese Society of Ornithology held in 2004, Nara-Jyosi University, Nara, Japan: 153. (in Japanese).
 10. Fukui, D., Bando, G., Yokota, T., Asakawa, M. and Kosuge, M. 2004. (translated title) [Three fatal cases in wild birds with special references to red-necked phalaropes and Bohemian waxwings killed by collision, and to outbreak of atoxiplasmosis in tree sparrows]. Abstracts of the Meeting of Japanese Veterinary Association of Hokkaido held in 2004. Hokkaido University, Sapporo: 328. (in Japanese).
 11. Ishida, A., Iwao, H., Asakawa, M., Hinoue, M., Abe, S. and Kobayashi, Y. 2004. Preliminary report of endoparasites obtained from 2 alien reptile species (*Trachemys scripta* and *Chelydra serpentina*) in Japan. Bull. Herpetol. Soc. Jpn. 2004 (year): 35-36 (in Japanese)
 12. Ito, H., Tsunokawa, M., Fujii, K., Nakagawa, E., Taniyama, H. and Asakawa, M. 2004. Internal and external parasites obtained from a captive largemouth sawfish (*Pristis microdon*) and several wild ocean sunfish (*Mola mola*) in Hokkaido, Japan. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 102. (in Japanese).
 13. Koide, H., Asano, M., Hattori, K., Matoba, Y., Yoshino, T. and Asakawa, M. 2004. Preliminary survey ectoparasites obtained from feral raccoons (*Procyon lotor*) in Nopporo Forest Park, Hokkaido, Japan. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 88. (in Japanese).
 14. Kurauchi, Y. 2004. Sangiin- Kankyo- iinkaini- okeru- Tokutei- Gairai- seibutsu- houan- sankounin- chinjyutu. J. Jpn. Vet. Med. Assoc., 57: 410-414. (in Japanese)
 15. Matoba, Y. and Asakawa, M. 2004. Parasitic helminth community and its population ecology obtained from carnivore and rodents in Japan. Abstracts of the Meeting of Japanese Society of Mammalogy (Program and Abstracts) held in 2004, Tokyo-Nohgyo University, Tokyo: in press. (in Japanese).
 16. Matoba, Y., Asano, M., Hattori, K., Fukue, Y., Yokoyama, M., Suzuki, M. and Asakawa, M. 2004. A preliminary survey of the parasitic helminth species obtained from feral raccoons (*Procyon lotor*) captured in Japan and its diversity in comparison with the helminths in North America. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 87. (in Japanese).
 17. Nagura, R., Ito, H., Kobayashi, M., Fujii, K., Nakagawa, E., Saito, S., Suda, S. and Asakawa, M. 2004. Preliminary survey on the parasitic helminths obtained from the three seal species captured in Nosappu-misaki and Erimo-misaki, Hokkaido, Japan, in 2003. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 94. (in Japanese).
 18. Ohnuma, M., Nagamine, T., Inaba, M., Kawasaki, T., Kuwana, T. and Asakawa, M. 2005. (translated title) [First record of the

- genus *Heterakis* from Okinawa rail (*Rallus okinawae*)]. Abstracts of the 139th Meeting of the Japanese Society of Veterinary Sciences, Ri-ken: in press (in Japanese).
19. Ohtsuka, E., Sanada, N., Takenouchi, Y. and Asakawa, M. 2004. Preliminary survey on the parasitic protozoans in pet birds brought to the veterinary hospitals in Chiba and Saitama Prefectures, Japan. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 82. (in Japanese).
 20. Osa, Y., Takada, M., Ohashi, K., Okazaki, K., Akamatsu, R., Kaneko, M., Endoh, D. and Asakawa, M. 2004. Outline of epidemiological survey on pathogens causing infectious diseases on wild birds in Hokkaido, Japan, in order to set up a data base for risk management of outbreak of infectious diseases. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 83. (in Japanese).
 21. Sainsbury, M., Fox, F., Ohira, H., Kawadu, S. and Asakawa, M. 2001. (translated title) [Educational program and its impression of the Master of Science in Wild Animal Health held by the Royal Veterinary College and London Zoo, UK.] J. Vet. Med., Tokyo, 54: 801-812. (in Japanese)
 22. Sakai, Y., Takano, A., Kimura, J., Oshida, T., Endo, H., Sasaki, M., Rerkamnuaychoke, W., Son, N.-T., Hayashi, Y. and Asakawa, M. 2004. Taxonomical study on the parasitic nematodes obtained from wild sciurids in South East Asia. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 91. (in Japanese).
 23. Sashika, M., Matoba, Y., Abe, G., Araki, N., Koide, H., Taniyama, H. and Asakawa, M. 2004. A field survey on the coccidian parasites obtained from raccoon dogs (*Nyctereutes procyonoides*) in Hokkaido, Japan. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 93. (in Japanese).
 24. Sato, A., Murata, K., Ikebe, Y., Kawai, N., Koizumi, J.-i. and Asakawa, M. 2004. A case report on the parasitological survey performed in several zoos on Honshu I., Japan, in 2003 with special reference to the parasitic helminths obtained from captive mammals and the genus *Atoxoplasma* from Bali Mynahs. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 97. (in Japanese).
 25. Sato, M., Yagi, Y., Sone, K., Oda, S.-i., Tatsuzawa, S., Hasegawa, H. and Asakawa, M. 2004. (translated title) [A preliminary epidemiological survey on 2 helminth species obtained from nutrias (*Myocastor coypus*) in the western-part of Japan]. Abstracts of the 138th Meeting of the Japanese Society of Veterinary Sciences, Hokkaido University, Sapporo: 66. (in Japanese).
 26. Satoyoshi, A., Kabaya, H., Hagiwara, K., Taniyama, H., Yoshizawa, K., Tuji, M., Hagiwara, K., Muramatsu, Y. and Asakawa, M. 2004. A preliminary report of parasitological and microbiological survey of free ranging Japanese macaques (*Macaca fuscata* (Blyth)) in Boso Peninsula, Japan. J. Jpn. Soc. Wildl Zoo Med., 79-83.
 27. Shingaki, T., Sakata, K., Takada, Y., Tamura, N., Tsuji, M., Hasegawa, H. and Asakawa, M. 2004. A preliminary survey on the parasitic helminths of alien and endemic rodents on Fukue-jima I., Goto Is., Japan. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 90. (in Japanese).
 28. Suda, S., Ikeuchi, T., Ohashi, K., Gerasimov, Yu.-N., Gerasimov, N.-N., Osa, Y. and Asakawa, M. 2004. Preliminary survey on the parasites obtained from wild and captive geese in the Kamchatka Peninsula, Russia. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 99. (in Japanese).
 29. Tsubota, T. and Asano, M., 2004. The COE Wildlife Rescue Center of Gifu University. J.

- Vet. Med., Tokyo, 57: 142-144. (in Japanese)
30. Tsubota, T., Nigi, K., Hayama, S., Ohtaishi, N., Kai, C., Masegi, T., Shimada, A., Ohnishi, Y., Asakawa, M. and Sakai, T. 2000. (translated title) [Suggestion of an educational system of zoo and wildlife medicine presented in Japan]. J. Jpn. Soc. Zoo Wildl. Med., 5(2): Ro-Ho. (in Japanese)
 31. Uemura, J., Kinbara, R., Yoshino, T., Morita, T., Taniyama, H. and Asakawa, M. 2004. Morphological, pathological and clinical reports on the harpyrhyndid mites obtained from 5 individuals of hawfinch (*Coccothraustes coccothraustes*) captured in Hokkaido, Japan. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 101. (in Japanese).
 32. Yoshino, T., Kawakami, K., Miyagi, Y. and Asakawa, M. 2004. Parasitological survey on introduced avian species on offshore islands in Japan. The 10th Meeting of Japanese Society of Zoo and Wildlife Medicine (Program and Abstracts), The University of Tokyo: 98. (in Japanese).
 33. Yoshiki, A., Matoba, Y., Asakawa, M., Takahashi, T. and Kikuchi, N. 2004. (translated title) [Epidemiological survey on the genus *Leptospira* obtained from feral raccoons in Hokkaido, Japan]. Abstracts of the 138th Meeting of the Japanese Society of Veterinary Sciences, Hokkaido University, Sapporo: 104 (in Japanese).

要 旨

酪農学園大学野生動物医学センターを基盤とした教育研究活動一関連分野における過去、現在そして未来との関わり合いから

2004年度、新設された酪農学園大学附属動物病院の目的の一つに、「野生動物医学を通して環境問題研究の拠点を開る」がある。その具現化として、全学共用施設「野生動物医学センター（以下、センター）」が併設された。センター仮運用開始の2004年2月から本文作成の同年8月までの約半年間に行われた教育研究事例を紹介しつつ、センターが果たすべき役割を考察する。

野生動物医学には、野生動物の保護管理を実践するための理論確立、傷病野生動物の治療と野生復帰の技術確立、致死性の感染症の予防や発生時の対処法の確立、人獣共通感染症の感染環とそのメカニズムの解明、希少動物の飼育下繁殖方法の確立、生体機構と個体群動態との関連の解明、動物園動物における臨床技術の確立などを旨とした環境科学、保全生物学（あるいは保全医学）、動物疾病学ならびに動物臨床医学などの幅広い分野を含む。

しかし、本学の野生動物医学センターでは、文科省ハイテク・リサーチ「動物感染症病原体・寄生体と環境汚染物質検出のための研究」施設の一つとして設置されたものである。よって、野生動物医学研究の中でも、生物多様性の保全に関わる感染症や環境汚染物質の調査研究に重点が置かれる。現在、センターで活動しているのは、ハイテク・リサーチの研究計画を事前に提出した学内外の教員・研究者と、彼等をサポートする・行政担当者・獣医師・大学院生・学部生（獣医学部以外の学部も含める）・研究生などである。

建物母屋は鉄筋コンクリート平屋（面積100平米）と限られたスペースではあるが、入院室・サンプリング室、分析室、研修室を備える。入院室・サンプリング室はP2レベルに保持され、日常業務的な野生鳥獣からのサンプリングと救護個体の検疫と診療、飼育が行われる。飼育については、屋外にスーパーハウスを改造した放鳥舎も併設し、内部には油汚染の海鳥の収容を想定し、大型バットを2台用意した。安全キャビネットを備えた分析室で、感染症・寄生虫症および環境汚染物質分析用試料の調整をする。研修室では、研究課題の模索のための関連資料の保存・閲覧、会議、大学院講義、道内外の野生動物医学の専門家と本学教員・学生の交流、高度教育拠点としても活用されている。

これまでの共同研究の事例を、外来種、在来種および飼育動物に分けて紹介した。2004年6月、特定外来生物法が公布されたが、外来種問題はペットとして移入・飼育されてきた動物の遺棄や逸走に起因するものが多いことから、獣医師が無関係であることは出来ない。このような背景から、センターでは外来種問題の野生動物医学的なアプローチをテーマの一つとして掲げている。対象としている外来種としては、アカミミガメ、カミツキガメ、インドクジャク、バリケン、ホンセイインコ、ガビチョウ、ソウシチョウ、タイワンリス、ヌートリア、キョン、アライグマ、ハクビシン、ミンクなどである。在来の野生動物については鳥類（風力発電風車への衝突事

例剖検，鳥インフルエンザを含めた感染症調査，救護個体の処置と利用など）と哺乳類（タヌキ，ヒグマ，ニホンザル，齧歯類など生態と絡めた病原体調査など）とに分け解説した。さらに，センターでは動物園・水族館における展示動物，愛玩鳥やエキゾチック・ペット動物，特用家畜（ダチョウ，アイガモ，アカシカなど），実験動物などの寄生虫・感染症診断や疫学調査に対応している。

大学は独自の研究活動を背景に，教育することが使命である。前述の多様な研究は，センターで展開されている野生動物医学および学芸員実習，獣医学演習・卒業論文などの基盤となっている。また，教育の延長線上にあり，研究のネットワークの潤滑剤と目される啓発活動では，本学の後援する「元気！ミルク大学」などで利用された。本学における野生動物医学研究の特色は，フィールド調査に活用される野幌森林公園に隣接し，しかも野生動物個体の飼育・分析を安全に行う，生態系一一体内の流れが容易に展開されることである。その要に本学野生動物医学センターを位置付けることが今後の課題である。

なお，本文に準ずる内容は，研究のためのネットワーク化を図る目的で，国内外に2004年から2005年にかけて開催されたいくつかの学会（日本野生動物医学会，日本獣医師会，野生生物保護学会，日本哺乳類学会，日本生態学会，爬虫類と両生類の臨床と病理の研究会，日本生態学会，近畿地区動物園水

族館獣医師勉強会，米国動物園獣医師会，英国野生動物医学修士課程創設10周年記念シンポジウム，齧歯類生物国際会議，世界野生生物病理学会，第9回世界哺乳類学会など）での口頭あるいはポスター発表，資料配布，ホームページ <http://www.geocities.jp/wildlifeparasite/wlp1.html>，そして，以下のような冊子にて紹介された。

浅川満彦・谷山弘行 2004. 獣医師会・行政組織・大学・研究機関との連携による調査体制と酪農学園大学野生動物医学センターの役割. 北海道獣医師会雑誌 48: 424-429.

浅川満彦・谷山弘行. 2004. 酪農学園大学野生動物医学センターにおける両生爬虫類医学の今後の教育研究について. 爬虫類と両生類の臨床と病理の研究会第3回ワークショップ（2004年10月30日，麻布大学）要旨集 P-17.

なお，2005年7月31日～8月5日，酪農学園大学がトータルスポンサーとして全面的に支援する第9回国際哺乳類学会（International Mammalogical Congress: IMC9/<http://www.imc9.jp>：大会長 環境システム学部・大泰司紀之教授）が開催される。この学会の主会場は札幌市コンベンションセンターであるが，「野幌森林公園と哺乳類学」（座長：大泰司教授）などのワークショップのように，地の利を生かした企画が本学で開催され，その際，野生動物医学センターが大いに活用されることになったことを付記する。

Summary

The aims of the Wild Animal Medical Center (WAMC), Rakuno Gakuen University, Japan, were presented with special reference to the research and educational activities currently being undertaken. This overview was based on the aims of the 29 papers from WAMC published between February and July 2004. Definitions of zoo and wildlife medicine and an outline of WAMC are provided. Research activities focusing on parasitic or infectious diseases/pathogens of zoo and wild animals are currently being conducted in WAMC, and the results obtained are related to the host ecology of Nopporo Forest Park, which is located next to the institute. Hence, the research and educational trends of WAMC will provide vital information from the micro to macro level.