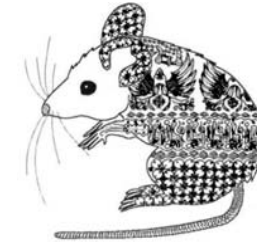


Papers and posters presented at the 2nd International Conference on Rodent Biology and Management
Canberra, 10-14 February 2003

Title of Symposia	Chairs of Symposia
Disease	Herwig Leirs and Lyn Hinds
Conservation	Dale Nolte and Chris Dickman
Behaviour	Jerry Wolff and Charles Krebs
Management - field	Grant Singleton and Sudarmaji
Population ecology and modelling	Roger Pech, Zhibin Zhang
Sociology & economics of rodent management	KL Heong and Christine King
Management – urban rodents & rodenticide resistance	Roger Quy and Steve Balmain
Taxonomy and systematics	Ken Aplin and Peter Taylor
Rodent biology – contrasting perspectives	Lyn Hinds and Mike Begon
Predator-prey	Wendy Ruscoe and Erkki Korpimaki
PLENARY 1 DISEASE	
<u>Professor Mike Begon</u>	Disease: health effects on humans, population effects on rodents
PLENARY 2 CONSERVATION	
<u>Dr Giovanni Amori</u>	Rodents on islands: a conservation challenge
PLENARY 3 BEHAVIOUR	
<u>Professor Charles Krebs</u>	How does rodent behaviour impact on population dynamics?
PLENARY 4 MANAGEMENT - FIELD	
<u>Professor Herwig Leirs</u>	Management of rodents in crops: The Pied Piper and his Orchestra
PLENARY 5 POPULATION ECOLOGY AND MODELLING	
<u>Dr Roger Pech</u>, Stephen Davis and Grant Singleton	Outbreaks of rodents in agricultural systems: pest control problems or symptoms of dysfunctional ecosystems?
PLENARY 6 POPULATION ECOLOGY AND MODELLING	
<u>Dr Murray Efford</u>, B.M. Fitzgerald and P.R. Wilson	The role of aseasonal breeding in eruptions of feral house mice inhabiting NZ forests
PLENARY 7 MANAGEMENT - URBAN RODENTS AND RODENTICIDE RESISTANCE	
David Cowan, <u>Dr Roger Quy</u> , Lambert	Ecological perspectives on the management of commensal rodents
PLENARY 8 TAXONOMY	
<u>Dr Ken Aplin</u>, Terry Chesser and Jose ten Have	Evolutionary biology of the genus <i>Rattus</i> : profile of an archetypal rodent pest
DISEASE - ORALS	
<u>Rhodes Makundi</u>, Kilonzo and Massawe	Interactions between rodent species in agro-forestry habitats in Western Usambara
<u>Waraluk Tangkanakul</u>	Situation of noticeable rodent borne diseases in Thailand



Lyn Hinds, Chris Hardy, Mal Lawson, Grant Singleton

Developments in fertility control for pest animal management

Juha Laakkonen, Jukka T. Lehtonen, Haingotiana Ramiarinjanahary and Patricia C. Wright

Trypanosome parasites in the invading *Rattus rattus* and endemic rodents in Madagascar

Robert Machang'u, G. Mgode, J. Asenga, et al

Characterization of *Leptospira* isolates from captive giant African pouched rats, *Cricetomys gambianus*

Neena Singla, Parshad, Singla

Potential of *Trypanosoma evansi* as a biocide of rodent pests

Jerry Wolff

A retrospective analysis of a vole population decline in Western Oregon, USA

Dorian Moro and Mal Lawson

Pathogen study of house mice on islands reveals insights into viral persistence in isolated populations

DISEASE - POSTERS

1 N.A. Herawati, Sudarmaji

Helminths of the rice field rat, *Rattus argentiventer*

2 Lachhman Singla, Singla, Sandhu, Singh

Occurrence and pathomorphological observations of *Cysticercus fasciolaris* in lesser Bandicoot rats in India

3 Grant Singleton, Smythe, Smith, Morgan, Spratt, Aplin, Smith

Rodent diseases in southeast Asia and Australia: inventory of recent surveys

4 D. Rivera, L. Leung, L. Smythe, M Symonds, M. Dohnt, L. Barnett, H. Robertson, J. Hanna

Study in progress of ecological and epidemiological investigation of small and medium sized terrestrial mammals as sources of leptospirosis in banana farms in the Innisfail and Tully regions of Far North Queensland

5 Tangkanakul W, Hartskeerl RA, Brag SL, Phulsuksombati D, Khoprasert Y, Supalerg C, Smits HL.

Leptospira in human and the Bandicoot rat in Nakorn Ratchasima, Thailand

6 Andrew Smith, Malcolm Bennett, Sandra Telfer, Sarah Burthe and Mike Begon

Field scale experiments in rodent-pathogen interactions: a preliminary report

7 Peter John Taylor

An integrated plan for the management of rodents and rodent-borne zoonotic diseases in urban and peri-urban areas of Durban, South Africa

8 Duangporn Phulsuksombati, Noppadol Sangjun, Yuwaluk Khoprasert, Waraluk Tangkanakul, Darika Kingnate, Lee Smythe

Leptospire in rodents from the northeastern region of Thailand 1999-2000

CONSERVATION - ORALS

Chris Dickman

Positive effects of rodents on biota in arid Australian systems

Dale Nolte, Luckman, Bergman, Arjo, Perry

Feasibility of non-lethal approaches to protect riparian plants from foraging beavers in North America

Ken Aplin and Grant Singleton

Balancing rodent management and small mammal conservation in agricultural landscapes: challenges for the present and for the future

John Seebeck, Wilson and Menkhorst

Conservation and management of hydromyine rodents in Victoria, Australia

Nico Avenant

The use of small-mammal community characteristics as an indicator of ecological disturbance in the Korannaberg Conservancy

Ron Firth

Activity range and den trees of the brush-tailed rabbit-rat on Cobourg Peninsula, NT, Australia

Elaine Murphy and Peter Dilks

Rodents and New Zealand birds - unravelling an unnatural relationship

Jean-Francois Ducroz, M. Stubbe, A. P. Saveljev, R. Samjaa, A. Stubbe and W. Durka

Phylogeny of the Eurasian beaver *Castor fiber* using mitochondrial DNA sequences: a new tool in beaver conservation

CONSERVATION - POSTERS

9 Giovanni Amori and S. Gippoliti

How do rodent systematics affect conservation priorities?

10 Nicole Hagenah & Han Olf

Interplay of small mammals with large herbivores in South African savannahs: Functional diversity in a natural production and conservation system

11 Philippe Gil de Mendonça

The yellow-necked mouse: a case for conservation in Britain

12 Nicholas O. Oguge¹ and Walter Verheyen

Small mammal diversity in southeast moist forests in Kenya: an assessment of patterns and hypotheses

13 Chris Slade and Jurskis, V.

Smoky Mouse habitat in southeast NSW: distribution and habitat in a multiple use forest mosaic

14 Nguyen Minh Tam, Tien, Tuan

Conservation of rodents in tropical forests of Vietnam

15 Elaine Murphy and Fraser Maddigan

Understanding small mammal impacts on endemic invertebrates

BEHAVIOUR - ORALS

Jerry Wolff

Density-dependence & socioecology of space use in rodents

Xavier Lambin

Metapopulation persistence in the face of American mink predation in the endangered water voles in

Hannu Ylönen, Eccard and Sundell

Boreal vole cycles and vole life histories

Shawn Thomas and Jerry Wolff

Scent marking in rodents: a reappraisal, problems and future directions

Duncan Sutherland and Grant Singleton

Monitoring activity patterns and social interactions of small mammals with an automated event recording system: wild house mice (*Mus domesticus*) as a case study.

Richard Williams, Grant Singleton, Chris Dickman

The role of interspecific competition in determining macrohabitat use by the black rat and brown rat at Bradleys Head, NSW

Jerry Wolff

BEHAVIOUR - POSTERS

16 Dazhao Shi and Chen Guokang

Study of social behaviour of Brandt's voles

- 17 Wei LIU, Wenqing ZHONG, Xinrong WAN, Guanghe WANG Seasonal difference in social behaviour among Mongolian gerbils, *Meriones unguiculatus*
- 18 Guiming Wang and Jerry Wolff Effectiveness of controlling fecundity and survival on rodents with different life history traits

MANAGEMENT - FIELD - ORALS

- Jens Jacob, Sudarmaji and Grant Singleton Ecologically-based management of ricefield rats on a village scale in West Java - experimental approach and assessment of habitat use
- Peter R. Brown, Nguyen Phu Tuan, Grant Singleton, Nguyen Van Tuat, Tran Quang Tan and Le Thanh Hoa Impact of village-level rodent control practices on rodent populations and rice crops in Vietnam
- Mohan Rao Rodent problems in India and the strategies for their management
- John White Habitat manipulation and rodent damage control - reducing rodent damage in Australian macadamia orchards
- Apia W. Massawe, Herwig Leirs, Winfrida P. Rwamugira and Rhodes H. Makundi Effects of land preparation methods on spatial distribution of rodents in crop fields
- Michelle Smith, Brendan Dyer, Andrew Brodie, Warren Hunt & Linton Staples Overcoming rat infestation in Australian sugarcane crops using an integrated approach that includes new rodenticide technology
- Loth Mulungu, Rhodes Makundi and Herwig Leirs Robustness of techniques for estimating rat damage and yield loss in maize fields
- Jo Pelz Current approaches towards environmentally benign prevention of vole damage in Europe
- Rhodes Makundi and Apia Massawe Review of recent advances in studies of the ecology of *Mastomys natalensis* (Smith, 1834) (Rodentia: Muridae) in Tanzania, eastern Africa
- Luke Leung, Angela Frost, Iean Russell, Chan Phaloeun, Seth Sopheap, Chheng Nareth and Tea Rithy Vong Farmer-based Adaptive Rodent Management, Extension and Research systems in Cambodia (FARMER): damage and yield for the first TBS experiment
- Xinrong WAN, Wenqing ZHONG, Guanghe WANG and Wei LIU Food insurance of the Brandt's Vole - benefit from overwinter aggregation

MANAGEMENT - FIELD - POSTERS

- 19 Afework Bekele, Herwig Leirs & Verhagen Composition of rodents and damage estimates on maize farms at Ziway, Ethiopia
- 20 Peter Brown, Grant Singleton, Geoff Norton and David Thompson Mouser (Version 1.0): an interactive CD-ROM for managing the impact of house mice in Australia
- 21 Mario dela Cruz, Ulysses G. Duque, Leonardo V. Marquez, Antonio R. Martin, Ravindra C. Joshi and Emmanuel R. Tiongco Rodent removal with trap-barrier systems in a direct-seeded rice community in the Philippines
- 22 Jens Jacob, Dale Nolte, Rudy Hartono Subagja, Sudarmaji Pre- and post-harvest movements of female ricefield rats in West Javanese rice fields

- 23 Nazira Quraishi Kamal & Mofazzel Hossain Comparison of different baits to attract rats to traps in rice fields in Bangladesh
- 24 Khamphoukeo, Douangboupha, Aplin, Singleton Pest and non-pest rodents in the upland agricultural landscape of Laos: a progress report
- 25 La Pham Lan, Ken Aplin, Nguyen Manh Hung, Nguyen Viet Quoc, Ho Van Chien, Nguyen Duc Sang and Grant Singleton Rodent communities and historical trends in rodent damage in the Mekong Delta of Vietnam: establishing an ecological basis for effective pest management
- 26 Le Quoc Cuong, Ho Van Chien, Le Van Han, Vo Hien Duc, Grant R. Singleton Relationship between rodent damage and yield loss in rice in Mekong Delta

PREDATOR-PREY - ORALS

- Tony Arthur and Roger Pech The non-lethal impacts of predation on mouse behaviour and reproduction – implications for pest population dynamics
- Deborah Wilson Predation and reproduction during the decline phase of a collared lemming population
- Erkki Korpimäki Predation and food supply: the factors driving population cycles of northern voles
- Andrea Byrom Predation risk and behaviour during dispersal: implications for population dynamics of rodents
- Peter Banks, Kai Norrdahl, Mikael Nordström and Erkki Korpimäki Dynamic impacts of feral mink predation and weather on vole metapopulations in the outer archipelago of the Baltic Sea

PREDATOR-PREY - POSTERS

- 27 Fiona Powell and Peter B. Banks Do house mice modify their foraging behaviour in response to predator odours and habitat?
- 28 Xavier Lambin, Jonathan P Fairbairn, Isla M. Graham and David Tidhar Multi-annual population cycles in field vole populations: an experimental refutation of the specialist predation hypothesis

POPULATION ECOLOGY AND MODELLING - ORALS

- Zhibin Zhang, Hefang Yang, Xiaoping Cao, Xu Tongqin, Fusheng Wang, Shoushen Hao, Wang Shuqing, Weiping Yang and Jianxu Zhang Density-dependence, grain yields and precipitation as determinants of population dynamics of two sympatric hamster species in cropland of the North China Plain
- Stephen Davis, Roger Pech and Grant Singleton Simulation of fertility control in eruptive house mouse (*Mus domesticus*) populations in south-eastern Australia
- Nigel Barlow Population regulation revisited
- Alice Kenney, Charles Krebs, Stephen Davis, Roger Pech, Greg Mutze and Grant Singleton Predicting house mouse outbreaks in the wheat growing areas of south eastern Australia
- Wendy Ruscoe, David Choquenot, Richard Heyward, Ivor Yockney, Nigel Young and Kevin Drew Seed production, predators and house mouse population eruptions in NZ beech forests

<u>Peter Brown</u> , Davies, Croft and Singleton	Impact of farm management practices on house mouse populations and crops in an irrigated farming system
Bronwyn McAllan, W. Westman, M. S. Crowther and C. R. Dickman	Reproduction and growth in house mice from cold, hot and thermally moderate environments.
<u>Mathew Crowther</u> , Bronwyn McAllan and Chris Dickman	Morphological variation within Australian populations of the house mouse: an observational and experimental approach
<u>Víctor Sánchez-Cordero</u> and Saralina Zepeda	Modelling rodent pest distribution in Mexico
<u>Rahmini</u> , Sudarmaji, Jens Jacob and Grant Singleton	The impact of age on the breeding performance of female ricefield rats in West Java
<u>Herwig Leirs</u> , Anders Skonhoft, Nils Stenseth and Harry Andreassen	A bioeconomic model for the management of <i>Mastomys natalensis</i> mice in maize fields
<u>Vicky Ngowo</u> , J. Lodal, Loth Mulungu, Rhodes Makundi, Apia Massawe and Herwig Leirs	Evaluation of thiram and cinnamamide as potential repellents against maize seed depredation by the multimammate rat, <i>Mastomys natalensis</i> , in Tanzania

POPULATIONS/MODELLING - POSTERS

29 Honjun Li and Zhibin Zhang

Spatial heterogeneity of seed predation on wild apricot by small rodents

SOCIOLOGY AND ECONOMICS - ORALS

P. M. Sang, N.H.Huan, M.M. Escalada, and K.L.Heong

Farmers' beliefs and practices in rat management in the Mekong Delta, Vietnam

Sudarmaji, Grant R. Singleton, Nur Aini Herawati, Arti Djatiharti and Rahmini

Farmers' perceptions and practices in rat management in West Java, Indonesia

lean Russell, El Sotheary, Uy Sokco, Angela Frost, Jonathan Powell and Luke Leung

Community costs and benefits of rodent control in Cambodia: a first round analysis of adaptive management

Tuan, Williams, Brown, Singleton, Tan, Hue, Ha, Hoa

Farmers' perceptions and practices in rat management in Vinh Phuc province, Northern Vietnam

Steve Morin, Flor Palis, Ho Van Chien, Truong Ngoc Chi, Melina Magsumbol, and Aida Papag (Presented by Grant Singleton)

A sociological perspective on the community-based trap barrier system

Christine King, Angela Frost, Chan Phaloeun, Luke Leung, El Sotheary, Tea Rithy Vong and lean Russell

Adaptive management: a methodology for ecosystem and community-based rodent management in Cambodia

Angela Frost and Christine King

Gathering indigenous knowledge as a tool for rural research, development and extension: case study on rodent management in Cambodia

Kent Williams

Recognising and addressing potential concerns about releasing an immunocontraceptive virus for controlling mice, *Mus domesticus*

SOCIOLOGY - POSTERS

30 Sotheary El, Sokco Uy, Phaloeun Chan, Luke Leung, Farmers' beliefs and practices in rodent pest management in Cambodia
lean Russell, Angela Frost, Christine King

MANAGEMENT - FIELD - ORALS

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| <u>Emil von Maltitz</u> et. al. | Developing a rodent management strategy for South Africa's Limpopo Province |
| <u>Craig Gillies</u> , Campbell, Marsh & Gembitsky | Seasonal difference in bait acceptance by forest dwelling rats following simulated aerial 1080 possum control operations in New Zealand: interim results |
| <u>Bounneuang Douangboupha</u> , Ken Aplin, Grant Singleton | Rodent outbreaks in the uplands of Lao PDR: Analysis of historical patterns and the identity of <i>nuu khii</i> |
| Mario S. dela Cruz, Ulysses G. Duque, Leonardo V. Marquez, Antonio R. Martin, Ravindra C. Joshi, and <u>Emmanuel R. Tiongco</u> | Spatial activity of field rats in a two-rice cropping system in the Philippines |
| Ojwang D. and <u>Nicholas Oguge</u> | Testing a biological control program for rodent management in a maize cropping system in Kenya |
| <u>Sichilima</u> , Zulu & Leirs | The effects of <i>Tephrosia vogelii</i> and land preparation methods on mole rat activity in Cassava fields |

MANAGEMENT - FIELD - POSTERS

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| 31 <u>Djafar Baco</u> and J. Tandiabang | Implementation of integrated rat control by farmers in Pinrang, South Sulawesi |
| 32 <u>Loth Mulungu</u> , Rhodes Makundi, Herwig Leirs, Apia Massawe, Solveig Vibe-Petersen and Nils Stenseth | The rodent density-damage function in maize fields at an early growth stage |
| 33 <u>Sudarmaji</u> , Rochman, Grant Singleton, Jens Jacob and Rahmini | The efficacy of a trap-barrier system for protecting rice nurseries from rats in West Java, Indonesia |
| 34 Luke Leung and Shahram Kaboodvandpour | Economically-based management of mouse plagues |
| 35 <u>Dazhao Shi</u> and Wenqin Zhong | Strategies for managing rodent damage in grasslands in China |
| 36 <u>Morowati Mohssen</u> | Withdrawn |
| 37 <u>Morowati Mohssen</u> | Withdrawn |
| 38 <u>Morowati Mohssen</u> | Withdrawn |
| 39 <u>Tatsuo Yabe</u> and George A. Rivera | Debarking of malapapaya, <i>Polyscias nodosa</i> , by the Philippine rice-field rat, <i>Rattus rattus mindanensis</i> , in Luzon, Philippines |
| 40 Odhiambo, C.O. & <u>Nicholas Oguge</u> | Patterns of rodent pest distribution in a maize cropping system in the Kenyan Rift Valley |

MANAGEMENT - URBAN RODENTS AND RODENTICIDE RESISTANCE - ORALS

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| <u>Steve Belmain</u> , A.N. Meyer, R. Timbrine and L. Penicela | Managing rodent pests in households and food stores through intensive trapping |
| <u>Penny Fisher</u> , Charles Eason, Cheryl O'Connor, Choon H. Lee, Graeme Smith and Stefan Endepols | Coumatetralyl residues in rats and hazard to barn owls |

<u>Roger Quy</u> , Cowan, Lambert	Adapting baiting tactics to match the foraging behaviour of Norway rats: a balance between efficacy and safety
Colin Prescott	The RRAC-recommended blood clotting response (BCR) resistance test
<u>Ann-Charlotte Heiberg</u> , Herwig Leirs and Hans R. Siegismund	Bromadiolone resistance does not respond to absence of anticoagulants in experimental population of Norway rats
<u>Gai Murphy</u> and Peter Marshall	Factors influencing the occurrence of rodent infestations in an inner city area of Manchester
<u>Peter Marshall</u> and Gai Murphy	Investigating residents' perceptions of urban rodents in Manchester, UK
Iftikhar Hussain and <u>Colin Prescott</u>	Warfarin susceptibility in the lesser bandicoot rat, <i>Bandicota bengalensis</i>

MANAGEMENT - URBAN - POSTER

41 <u>Dale Nolte</u> , Bergman and Townsend	Roof rat invasion of an urban desert island
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TAXONOMY - ORALS

<u>Christiane Denys</u> et. al.	Integrative systematics: the importance of combining techniques for increasing knowledge of African Murinae
Pierre-Alexandre Landry ¹ , Sarah Noël ² , Nathalie Tessier ² and François-Joseph Lapointe ²	Landscape-dependent differentiation of deer mouse populations (<i>Peromyscus maniculatus</i>): a total-evidence approach using molecular and morphometric data
<u>Peter John Taylor</u> , Christiane Denys, Madhupa Muke	Phylogeny of the African rodent tribe Otomyini, based on morphological and allozyme evidence
<u>Kristofer M. Helgen</u> and Timothy F. Flannery	New rodent species from the Moluccas, and their biogeographic implications
<u>Sarah Noël</u> , Nathalie Tessier, François-Joseph Lapointe, and Bernard Angers	Of mice and flies: coevolution of <i>Peromyscus</i> and <i>Cuterebra</i>
F.P. Venturi, <u>Christian Chimimba</u> , R.J. van Aarde and N. Fairall	The distribution of <i>Mastomys natalensis</i> and <i>M. coucha</i> (Rodentia: Muridae) in South Africa
<u>Bill Breed</u>	Interspecific variation in litter size and gestation length in the Old World Rats and Mice (Subfamily: Murinae)
<u>Ken Aplin</u> , Terry Chesser and Jose ten Have	Taxonomy of the <i>Rattus rattus</i> Complex – a progress report

TAXONOMY - POSTERS

42 <u>Ken Aplin</u> , Angela Frost, Nguyen Phu Tuan, La Pham Lan and Nguyen Manh Hung	Identification of rodents of the genus <i>Bandicota</i> in Vietnam and Cambodia
43 Lecompte, <u>Christiane Denys</u> , Granjon and Volobouev	Integrative systematics: contributions to <i>Mastomys</i> phylogeny and evolution
44 <u>Bill Breed</u>	Interspecific variation in sperm morphology in rats and mice (Subfamily: Murinae)

- 48 Jean-François Ducroz, Vitaly Volobouev & Laurent Granjon Molecular phylogeny of Arvicanthine murid rodents using mtDNA sequences: Evolutionary and systematic implications
- 46 Eitimad H. Abdel Rahman, Ducroz, J.-F., Andrew Mitchell, Peter J. Taylor, Christiane Denys, Jenny Lamb, Gaincarlo Contrafatto Phylogeny of *Arvicanthis* from Sudan based upon complete cytochrome B gene sequences

RODENT BIOLOGY - CONTRASTING PERSPECTIVES - ORALS

- Nguyen Tri Khiem, Le Quoc Coung and Ho Van Chien (Presented by La Pham Lan) Market study of meat from field rats in the Mekong Delta
- De-Hua Wang, Zu-Wang Wang, Yu-Shan Wang and Jun-Cheng Yang Seasonal variations in metabolism and thermogenic capacity in greater long-tailed hamsters (*Cricetulus triton*)
- Grant Singleton, Alice Kenney, Colin Tann, Sudarmaji and Nguyen Quy Hung Myth, dogma and rodent management: good stories ruined by data?
- Charles Krebs Overview of Conference

RODENT BIOLOGY - POSTERS Discovery Link Room

- 47 De-Hua Wang and Zu-Wang Wang Rodent physiological ecology in China
- 48 Zhi-Gang Song, De-Hua Wang Basal metabolic rate and internal morphology in the Brandt's vole (*Microtus Brandit*): effects of photoperiod, temperature, and diet quality
- 49 Xing-Sheng Li, De-Hua Wang, Jun-Cheng Yang Effect of photoperiod on energy metabolism and body weight in Brandt's voles (*Microtus brandti*) and Mongolian gerbils (*Meriones unguiculatus*)
- 50 Zhi-Gang Song, De-Hua Wang Effects of temperature, diet quality and photoperiod on thermogenesis in Brandt's voles (*Microtus brandti*) and Mongolian gerbils (*Meriones unguiculatus*)
- 51 Hui Li, Chris Hardy, Yun Chen and Lyn A. Hinds Feasibility of fertility control for Brandt's vole
- 52 Soeprapto Mangoendihardjo and F.X. Wagiman Commercial use of rats and the use of barn owls in rat management



