



RABID BYTES

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The newsletter of The Global Alliance for Rabies Control

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EDITORIAL

We all know that humans and dogs have been dependent upon each other for centuries and unfortunately, this also means that they sometimes share each other's diseases. Rabies is one of the deadliest of the zoonotic infections that we are concerned about when it comes to taking care of our own pets. It is estimated that there are 375 million homeless dogs in the world and most of these unfortunate animals live in areas where rabies is a threat. This enormous number of free-roaming dogs makes it easy for rabies to circulate within resident dog populations thus posing a continuous threat of exposure to rabies for people living in the same area. We also know that the uncontrolled reproduction rate of dogs in canine rabies endemic countries continues to be a major concern and we, along with many other organizations and public health institutions continue to support the push to find humane methods to solve this problem. This past month, the Alliance was pleased to be a part of a unique opportunity to collaborate with the organizations "Spay First" and the PETCO Foundation. They are fundraising to support efforts to [develop a combination rabies vaccine and immuno-contraceptive](#) for our canine friends, a tool that could transform rabies control and the future for stray dogs. I was able to join Dr Richard Franka, from the Centers for Disease Control and Prevention, and Ruth Steinberger, from the organization Spay First, as guests on the radio show "Dogs Rule" hosted by Michelle Armstrong of Lulu's Rescue to tell the story about the ongoing research and the hopes of developing this new tool for aiding in the fight against rabies. Marians Dream made a generous donation to the initiative and the PETCO Foundation generously committed to contributing up to \$25,000 in matching funds for all of the money that we could raise toward this project up until the end of April. We are happy to announce that this fundraising opportunity to raise money for the project has been extended until the end of May. We are confident that we can count on your support to triple the funding to reach our goal of \$125,000. To donate, please go to our website page ["A better future for stray dogs"](#). Every penny that is donated for this project is passed on to support the work at the Centers for Disease Control and Prevention. Our heartfelt thanks go out to all of those involved in these efforts, and we are especially thankful to Esther Mechler of Marian's Dream and Paul Jolly of the PETCO Foundation for their incredible support and their belief that we can find a solution to help all of the homeless dogs around the world.



Stray Dog in Bahamas, photo David Trawin

Deborah Briggs, Executive director, GARC

NEWS FROM GARC AND WRD

New search facility for rabies educational resources

Major improvements have been made to the [education bank pages](#) of the World Rabies Day website. A new search facility now helps users to locate rabies prevention posters, lesson plans and presentations in a wide variety of languages in a much more user-friendly way. The facility can be used in English, French, Spanish or Portuguese.

Material is now arranged by geographical area and by target audience, so that a search can be narrowed down to find the most appropriate resources for a rabies prevention campaign or educational initiative. The pages can also be searched by key words. For example, if someone is planning a World Rabies Day initiative aimed at schools in Francophone Africa, they can search all the available French language materials for schools or simply for French language materials suitable for use in Africa.

The changes to the educational resource pages are part of a move to make the materials more accessible to people working in specific parts of the world or in a particular field of rabies prevention. The World Rabies Day team welcomes

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...**Rabies educational resources** *continued from page 1.*

feedback, particularly from people in areas with lower bandwidth or difficulty in accessing resources, to ensure as many people as possible are able to benefit from the material.

Peter Costa, World Rabies Day Co-ordinator, said, “Rabies education is saving lives, and our goal is to provide as many resources as possible to as many people as possible across all levels of society.”

If you have developed educational material and would like to share it with others in the fight against rabies, please send it to peter.costa@worldrabiesday.org. The World Rabies Day team is actively seeking new material in all languages, including local and minority languages, and sees the education bank as an ongoing, dynamic development.

Contributed by Jane Coutts, a member of the World Rabies Day team, and the African Outreach Officer for GARC. The pages can be accessed at [here](#).

New educational resources for rabies prevention

I am delighted to introduce educators to a new educational resource, ALL ABOUT RABIES! This is an entertaining, activity-based, educational package for children in grades 1-9 (ages 6-15) that focuses on responsible pet ownership, rabies prevention, and treatment. The materials have been developed both in English and Spanish to reach as many countries as possible. There are three levels (grades 1-3, grades 4-6, grades 7-9) to make them developmentally appropriate.



Each level is divided into four subjects for the teachers to use in addition to, or as part of, their curriculum: language & literacy, math & science, visual arts and music & drama. Within each level, teachers have ready-to-use materials for each subject, including information about rabies, activities with step-by-step procedures, worksheets and games. These materials were designed around the theory of Multiple Intelligences so as to reach all students effectively. Teachers will have the opportunity to learn about this innovative methodology that is being used worldwide.

The Multiple Intelligences Theory, developed by Dr. Howard Gardner at the Harvard Graduate School of Education (whom I had the honor of having as my professor), proposes that we all have eight distinctive but coordinated intelligences, each related to different aspects of our culture and different parts of the brain. These intelligences are linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal, intrapersonal and naturalistic.

This internationally known theory provides a great framework and insight for the field of education. It helps teachers understand the full range of each child’s intellectual strengths and provides the key to raising children to live in a global world. That is, nurturing each child according to his or her learning styles and then offering contexts and opportunities to enhance that potential. For the past twenty-five years, several educators and researchers within the US and around the world have been working to implement Multiple Intelligences Theory in the classroom.

In using these new materials, children will be using their multiple intelligences while learning about rabies and related content. Also, they will be practicing literacy, numeracy, and social skills. Most importantly, children will have fun while learning: they will play games, create songs, make drawings, read stories, design posters, and much more...

I hope that teachers and children will enjoy these materials and that they will contribute to eradicate rabies in our world.

Submitted by Valeria Fontanals, who developed the new materials. Valeria is an educational psychologist and kindergarten teacher who holds a Master of Education from Harvard Graduate School of Education. She has experience as a consultant, teacher, therapist, and trainer in the U.S, Argentina, China, and India. She is a founder of an early childhood educational company (www.littletalentum.com) and an international consultant company that aims to nurture children’s strengths and values (www.proyectovf.com). The new materials are available within the education bank of WRD website, and through these links: All About Rabies! for [Ages 6-8](#), for [Ages 9-11](#), for [Ages 12-14](#).

¡Todo acerca de la Rabia! para [niños de 6 a 8 años](#), para [niños de 9 a 11 años](#), para [niños de 12 a 14 años](#).



The 2011 WRD Latin America and Caribbean Awards

For the fourth year running, the Global Alliance for Rabies Control, in partnership with the Pan-American Health Organization (PAHO), has provided awards for the most outstanding World Rabies Day (WRD) initiatives in Latin America and the Caribbean. This year, certificates were offered in different categories, to recognise the efforts of smaller groups and volunteers and to recognise the more strategic and sustainable developments surrounding the WRD events themselves. Certificates were awarded to winners in six categories:

Most Innovative Educational Initiative: *Municipal Health Authorities, Itajaí, Brazil.*

The town of Itajaí in Brazil is free of urban rabies, and their WRD event illustrated the importance of maintaining awareness and vigilance against the disease. The municipal health authorities used a model bat cave (pictured) to illustrate to schoolchildren and the general public the ongoing danger of bat bites and how they should be treated. Technicians at the Zoonoses Control Centre were involved in media broadcasts on TV and radio, explaining how to prevent rabies and drawing attention to the need for people to vaccinate their animals.



Most Strategic Educational Initiative: *Trinidad & Tobago: Regional Rabies Awareness Seminar for Farmers and Rabies Public Outreach Events*

This category was won by a comprehensive partnership programme of educational events in Trinidad and Tobago. The programme targeted livestock farmers, butchers, veterinarians, schoolchildren and members of the public in areas particularly vulnerable to vampire bat bites. It was an exceptional partnership initiative, involving the local Veterinary Diagnostic Laboratory, Anti-Rabies Unit, and veterinary, livestock and public health officers. The initiative also conducted a KAP survey of farmers who attended seminars, as well as collecting information on farms and the incidence of bat bites. The information will be used to modify educational materials, target gaps in farmers' knowledge and plan future interventions.

Most Effective Media Campaign: *UMAЕ, Mexico: Rabies Prevention Poster for Cavers.*

UMAЕ, the Mexican Cavers' Association, won this section for their innovative use of media and for targeting a group at particular risk of exposure to bat bites. Their poster highlighted the importance of bats for the environment, explaining that cavers should not touch them, and detailing what to do if anyone is bitten. The poster was distributed by email throughout Mexico and the whole of Latin America, to 2142 cavers, 1457 virologists, 52 rabies specialists and veterinary technicians at the Mexican Federation of Veterinary Technicians.

Most Effective Event by a Non-Profit Organisation or Informal Local Group: *SAPUVET, Perú.*

To mark WRD 2011, students and teachers at SAPUVET (Faculty of Veterinary Medicine, Cayetano Heredia University) organised a comprehensive and detailed programme of research, education and vaccination. The group helped arrange vaccination campaigns through a health centre, and supported a local municipality's campaign for responsible pet ownership. They also developed a research project on the hospitalisation costs of dog bite accidents at the National Children's Health Institute in Lima, and published an article in a public health journal.



Most Effective Partnership Event: *Hospital de Vitarte, Lima, Perú: Canine Rabies Prevention Festival*

The Vitarte Hospital in Lima, Peru, organised a Festival Canino on WRD. The initiative was a successful collaboration between the health and education sectors, local government and the private sector. Primary and secondary school students were given important rabies prevention information, and the festival was heavily publicised in the press. On 28th September, a parade through the streets of the district (pictured) was followed by a competition to find the healthiest pet and a session of vaccination and deparasitisation for all participating animals.

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...**2011 WRD awards** *continued from page 3.*

Most Effective Vaccination Campaign: Universidad de Santo Tomás, Araucanía, Chile: *“By vaccinating my pet, I’m protecting my family”.*

Chile is officially free of canine rabies, but bats remain the principle source of risk. For the third year running, the School of Veterinary Medicine at the University of Santo Tomás Temuco in the Araucanía region joined the regional Ministry of Health in a large-scale rabies education and vaccination campaign. In 2011, they increased the percentage of cover in the campaign from 44% to 66% of the municipalities. They administered 2,000-3,000 free doses of vaccine to dogs and cats in the region, concentrating on families with the least resources, and rural areas where pets are at greater risk of contact with bats. These families would not have been able to afford to vaccinate their pets if they had had to pay for it themselves. The campaign hopes to extend its coverage of pet vaccination in future to 100% of the municipalities in the region.

The judges commented on the exceptional standard of all the entries, and would like to thank entrants for their efforts and for sending in their information and photographs.

Contributed by Jane Coutts of GARC on behalf of the WRD team.

NEWS FROM THE COMMUNITY

Evidence for a novel Lyssavirus in an African civet in Tanzania

A new *Lyssavirus* species has been discovered in an African civet (*Civettictis civetta*) in the Serengeti National Park (Tanzania) as part of a multi-disciplinary collaborative study between scientists in Tanzania, the USA and the UK. The virus was identified during routine rabies surveillance activities that have been conducted in the Serengeti ecosystem over the past decade.

On the 11th of May 2009 a civet displaying clinical signs consistent with rabies was killed by rangers in the Serengeti, following an incident when a child was bitten in an unprovoked attack. The child received post-exposure prophylaxis consisting of cleansing of the wound with soap and water and rabies vaccination, although no rabies immunoglobulin was administered. Brain samples from the civet were sent to the Central Veterinary Laboratory (Dar es Salaam, Tanzania) where the standard fluorescent antibody test and a direct rapid immunohistochemistry test revealed the presence of lyssavirus-specific antigen. Subsequent molecular analyses at the Animal Health and Veterinary Laboratories Agencies (UK) showed that the sequence obtained from the samples belonged to the Lyssavirus genus, but was highly divergent from canine rabies virus sequences from Serengeti domestic and wild animals and most closely related to the *West Caucasian Bat Virus* (WCBV) isolated from an insectivorous bat in the Caucasian region of Eastern Europe. The new virus has been named *Ikoma Lyssavirus* (IKOV) after the Ikoma Ward where the Serengeti is located. The virus remains a putative and yet unclassified member of the Lyssavirus genus.

The incident was highly unexpected as it occurred in a part of the Serengeti where rabies had not been detected since 2000 following the establishment of a domestic dog vaccination barrier around the park. Initial concerns related to a possible breach in the vaccination barrier were however superseded by the finding that this case of rabies had not been caused by a dog rabies virus, but by a novel lyssavirus for which the reservoir host has yet to be determined. Interestingly, IKOV groups very closely with WCBV to which insectivorous bats in neighbouring Kenya have been previously shown to be exposed. In addition, civets are nocturnal animals and therefore contacts with bats are possible, suggesting that the probable reservoir of IKOV are insectivorous bats and that cross-over infection to civets and other mammalian species is relatively rare. This hypothesis is further supported by the fact that lyssavirus infections in African civets documented so far have been restricted to infections of rabies viruses. However, further studies are required to determine the most likely reservoir species and the extent of exposure of Serengeti species to IKOV.

The new virus is unlikely to pose a threat to humans on the scale of that of dog rabies in this area of the world. However, concerns remain regarding the effectiveness of current human rabies vaccines against this new lyssavirus given a general lack of evidence for adequate protection of licensed biologics against non-phylogroup I lyssaviruses. Further studies will be undertaken to address these concerns. To date, the child bitten by the civet remains healthy.

*Submitted by Tiziana Lembo of the University of Glasgow, on behalf of the Serengeti research team. This finding is reported in a paper entitled “[Ikoma Lyssavirus, Highly Divergent Novel Lyssavirus in an African Civet](#)”, in the journal *Emerging Infectious Diseases* 18(4):664-667.*



Photograph of a Tanzanian African civet obtained by camera trap (courtesy of the Tanzania Carnivore Program)

Rabies in the Democratic Republic of Congo - a study by Dr. M. Nday Mwenze

A study has recently been published on the extent and nature of rabies cases in the town of Kananga, in the Democratic Republic of Congo. The author, Dr. M. Nday Mwenze, is a veterinarian based in the town, and is also responsible for the NGO "Animal pour la Santé" (Animals for Health). The study provides interesting data on the nature of rabies cases in an area where the disease is endemic, yet no systematic controls are in place.

In the town of Kananga, the last campaign to vaccinate dogs against rabies took place over 16 years ago, and there are now regular human and animal cases of rabies. During the two year study, 3 human rabies cases were reported in 2008 and the number of deaths rose to 7 in 2009. The study was conducted at the SEVYMED dispensary in Kananga. It is a mixed agro-veterinary / human health dispensary, and the only one of the town's 27 health establishments responsible for the management of rabies cases. It sells rabies immune globulin and vaccine and follows up the administration of vaccine through the local hospitals. The study gathered data on both human bite victims and the animals that had bitten them. The information included the breed of animal, where it came from, whether it had bitten more than one person and what had happened to it subsequently. Data collected from human bite victims included age, sex, geographical location, details of the bite, the season when the victim was bitten, how long it took for them to receive treatment and the number of vaccine doses they received.

The results showed that men (60.3% of 146 bite cases analysed) were more likely to be bitten than women because they have less fear of dogs, and are more involved in local trade in dogs and cats for meat. Children and young people were particularly affected by bites, with 22.6% of victims aged 1-10, and 21.2% 11-20 years old. These figures corresponded to other studies, and the author of the survey attributed this to the fact that children were less aware of the risks.

An alarming 50.7% of human bite victims received no specific rabies prevention treatment, and four out of the eight people bitten by a dog who died of suspected rabies received no treatment. Only a very small proportion of people (13.7%) sought treatment immediately after they were bitten, and only around 40% sought treatment within the first week. Some bite victims only sought treatment after clinical signs of rabies appeared, and this is attributed in part to the cost of vaccine and the lack of treatment centres. Even when there was a strong suspicion that the animal that had bitten them was rabid, people were reluctant to seek treatment because of the cost of vaccine. Of the 146 bite cases analysed in the study, only 33.5% received an adequate course of vaccine. The author is convinced that a lack of awareness, education and understanding about the risks is also a major cause of bites.

In summary, the study attributed the increasing or continuing number of rabies exposures in the DR Congo to the lack of a strategic prevention programme, the lack of treatment centres, the high cost of vaccine and a lack of awareness and education among the population.



The author considers the lack of government intervention to be a serious public health risk, and has called for a national, interministerial programme of surveillance and prevention, to include the Ministry of Health (to vaccinate bite victims), the Ministry of Agriculture (to arrange preventative animal vaccination campaigns) and the Ministry of the Interior (to manage stray animals). The author also call for a surveillance programmes to be under the responsibility of regional governments.

Contributed by Dr Nday Mwenze Clairvoyance (pictured). The article was summarised by Jane Coutts, African Outreach Officer for GARC, from an article published in September 2011 in the journal CERDAF, based in Bukavu in the DR Congo.

Rabies acquired from a Marmoset in Brazil

In March 2012, a 9 year old boy from the state of Ceara in Brazil was diagnosed with rabies.

The boy was bitten by a marmoset (tamarin monkey) on the 3rd of February while playing with the animal in the Jaiti municipality, 524 km from Recife, but did not tell his family about it. Medical attention began 15 days later with the 1st symptoms, fever and vomiting. Initially, the diagnosis was meningitis, but due to his restless behavior and the discovery of the history of an untreated animal bite, rabies was later considered. Samples taken in the hospital tested positive for rabies in the state laboratory, and the diagnosis was subsequently confirmed in Sao Paulo.

He was hospitalized in early March and placed in a coma according to the Recife protocol (based on the Milwaukee protocol), which previously saved a 16 year old adolescent from clinical rabies in Brazil in 2008. All parts of the Recife protocol were administered to the 9 year old, but on March 12th he died after a loss of blood pressure and cardiorespiratory arrest.

Summarised from 2 reports to ProMed Mail, on [March 7th](#) and [March 12th](#), both reporting Brazilian NE10 TV channel reports

Rabies risk assessment following a bat trapped on a plane

In August 2011, a commercial flight from Wisconsin to Georgia in the USA took off carrying 50 passengers, 3 crew, and one bat. The bat flew several times through the cabin before it was trapped in a lavatory. The plane returned to its departure city and the passengers disembarked. Although attempts were made to capture the bat for testing, it escaped, first through the cabin and then the airport terminal before being seen flying out of automatic doors. The plane was searched, no further bats were found, and 15 passengers reboarded for the flight to Georgia.



An investigation by the Centers for Disease Control and Prevention traced and interviewed 45 passengers, 3 crew, and maintenance staff, but none came into physical contact with the bat or were exposed to its saliva. Because ground crew reported previous bat sightings around the airport, an environmental assessment of the Wisconsin airport was conducted. The assessment found rigorous animal control procedures in place and no evidence of bat infestation. A few recommendations were made describing procedures to minimize contact between people and bats by using netting to prevent bats roosting in airport structures, extending and retracting the jetways at each gate before the first flight of the morning, and training airport employees on correct procedures for bat capture and submission for testing. No further bat sightings have been reported at the airport.

One complexity in the investigation was that a list of original passengers could not be used as this was voided when the flight was reboarded. Instead reservation records and other methods had to be used to trace passengers that could have been potentially exposed. Although in this case none of the passengers interviewed required postexposure rabies prophylaxis, the incident is a reminder that public health officials should be prepared to respond to such occurrences.

*Based on a news release from [Reuters](#), and the report "[Rabies Risk Assessment of Exposures to a Bat on a Commercial Airliner — United States, August 2011](#)" published in the *Morbidity and Mortality Weekly Report*, April 13, 2012 61(14);p 242-244.*

Rabies infected puppy imported into the Netherlands

A rabid puppy recently imported from Morocco to the Netherlands highlights how far dogs infected with rabies can travel with human help, and how people are put at risk when international legislations with respect to vaccination requirements are not fully obeyed.

In January 2012, a Dutch couple living in Morocco acquired an 8 week old puppy in a parking lot. They visited a local veterinarian who microchipped the puppy and issued a certificate of good health, but did not vaccinate it. Subsequently, the couple travelled to Spain where they acquired a European Pet Passport for the dog and they then flew with the dog to the Netherlands. Despite customs officials cuddling the dog, the pet passport was never examined in Spain or in the Netherlands. The couple introduced the dog to friends and family in the Netherlands, but soon afterwards it started to act abnormally, and it bit the owners on 14th February. The dog was initially diagnosed as having stress from the journey and was prescribed sedatives, but by 15th February its behavior was uncontrollable. When the veterinarian learned that the dog had originated in Morocco, they sought advice and consequently euthanized the dog and submitted samples to the diagnostic laboratory for rabies testing. On the evening of 15th February a positive result was confirmed.



Upon confirmation of a positive diagnosis, the public health services and the Centre for Infectious Disease Control in the Netherlands launched a joint investigation tracing all humans and animals that could have been exposed to the dog during the two weeks prior to the day of onset of clinical symptoms until its death. A total of 48 known contacts in three different countries needed to be contacted. Forty-five persons required post-exposure prophylaxis including all nine children that were in contact with the puppy as a precautionary measure against inaccurate reporting of their exposures. Including the imported dog, three animals were euthanized.

The owners had attempted to import the dog legally. However, the international protocol for importation of pets was not followed properly by the consulted veterinarians in Morocco and Spain and customs in Spain and the Netherlands. The European dog passport was incorrectly issued, and vaccination records were not reviewed at three separate customs stations. Lessons learned from the evaluation need to be communicated internationally to urge veterinarians and customs departments to adhere to international legislation appropriately. This is the first case of classical rabies in a domestic or wild animal in the Netherlands since 1988, and resulted in a costly public health response.

*Summarised by Louise Taylor from a [report by van Rijckevorsel and colleagues](#) in the March 8th 2012 issue of *EuroSurveillance*.*

TravelRabNet network and survey

Reliable and up-to-date information on the supplies of rabies vaccine and rabies immunoglobulin (RIG) around the world is currently not available. This type of information could help travel health advisers to decide whether or not to recommend pre-exposure vaccination to travellers planning to visit rabies endemic countries and to give travellers reliable information about where to seek care in their destination country in case they are exposed to a suspect rabid animal.

In order to overcome this limitation, EuroTravNET (an initiative of the Travel and Tropical Medicine Network of the European Center for Disease Control and the International Society of Travel Medicine) have established TravelRabNet, a network of health-care providers responsible for providing PEP to international travellers in rabies endemic countries.

They have set up an online survey, asking 3 simple questions about clinic locations and the rabies biologicals available in them. Data collection has now started, and the information will be compiled, made freely available on the ISTM website (www.istm.org), and updated every 6 months. Any person working in a clinic that provides PEP in a rabies endemic country is invited to join the network and complete the survey. Feedback will be provided to TravelRabNet network members through a newsletter including a summary of collected data. EuroTravNet will also share data about potential rabies exposures in European international travellers and rabies cases.

There is more information on EuroTravNET, its projects and publications at: www.istm.org/eurotravnet/main.html and the rabies online survey can be found on the page: www.istm.org/eurotravnet/specificsurveys.html.

Submitted by Dr. Philippe Gautret, MD, PhD who can be contacted at TravelRabNet@yahoo.fr



Dr. Victor J. Cabasso

Dr. Victor J. Cabasso, a pioneer virologist and immunologist die on February 28th 2012, at the age of 96. Dr Cabasso was born in Egypt, and was a young researcher in the Pasteur Institutes in Paris (at the time when Germany invaded France during world War II), and later in Tunis. He moved to the US after World War II at the invitation of an army officer who recognized his expertise in the emerging field of virology. He became chief of immunologic virus research at the Lederle Laboratories where he and Dr. Albert Sabin created two strains of live polio virus and developed methods for weakening one strain until it could not possibly cause the disease while retaining its complete structure - an achievement that become known as the Sabin live polio vaccine.

Later at Cutter laboratories, Dr. Cabasso led a laboratory team that developed the first human antirabies serum after six years of experiments - an achievement that formed the basis of current Rabies Immunoglobulins.

Based on a news article in the [San Francisco Chronicle](#)

Upcoming Conferences

The 15th International Congress on Infectious Diseases (ICID) will be held in Bangkok, Thailand on June 13-16, 2012.

Further details can be found at www.isid.org/acid/welcome.shtml

The 1st International Conference on Dog Population Management 2012 will be held in September 4-8, 2012 in York, UK. Further details are at www.dogpopulationmanagement2012.co.uk

The 2012 Rabies In The Americas (RITA XXIII) meeting will be held in São Paulo, Brazil, October 14-18, 2012. The website is at www.ritaxxiii.org.

The editor of the Alliance newsletter is Louise Taylor, and typesetting is by Pete Else. If you have news or information about rabies, please contact louise.taylor@rabiescontrol.net. For further information on the Alliance's work see www.rabiescontrol.net.