

Tapir Conservation

The Newsletter of the IUCN/SSC Tapir Specialist Group

www.tapirspecialistgroup.org

Edited by Leonardo Salas and Stefan Seitz

■ Third International Tapir Symposium Report



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■ Human/Tapir Conflicts

■ A Tapir for Sale on the Web

■ Analysis of Footprints for Tapir Identification

■ Conservation of Baird's Tapir in Oaxaca, Mexico

■ Ethnozoology of the Amazonian Tapir

■ New Record of a Plant Species Dispersed by Tapirs



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FROM THE CHAIR

Letter from the Chair

By *Patrícia Medici*

It feels as if it were only yesterday that we were hosting the First Tapir Symposium in Costa Rica. As I always say, that first conference was without any doubt the moment when things started happening for the Tapir Specialist Group. Tapir researchers and conservationists from all over the world, with many different backgrounds and institutional affiliations, and doing many different types of research, had the opportunity to meet each other in person, exchange their experiences, and establish short- and long-term partnerships. After the First Symposium our TSG members became a lot more involved, and the group went through a process of growth and improvement never before seen in the history of the TSG.

The success of the First Symposium and the enthusiastic feedback we received from our participants led us to believe that we should keep holding this conference on a regular basis, and as a consequence we held the Second Symposium in 2004 in Panama, another extremely successful meeting.

Earlier this year we all got together once again for the Third International Tapir Symposium held in Buenos Aires, Argentina, from January 26 to 31. On behalf of the main organizers of our third conference, including the Tapir Specialist Group, Fundación Temaikèn, Houston Zoo Inc., American Zoo and Aquarium Association (AZA) Tapir Taxon Advisory Group (TAG), and European Association of Zoos and Aquaria (EAZA) Tapir Taxon Advisory Group (TAG), I would like to let you know that the conference was another very successful event of the TSG, and another landmark for our group!!! The Symposium counted with 95 participants, including tapir conservationists from 18 countries worldwide (Argentina, Bolivia, Brazil, Canada, Colombia, Costa Rica, Denmark, Ecuador, Guatemala, Honduras, Indonesia, Malaysia, Mexico, Peru, Spain, United Kingdom, United States, and Venezuela).

I will never have enough words to thank all the organizations and people who helped us to turn this Third Symposium into reality. The conference had the financial and/or institutional support from over 70 conservation organizations worldwide, mostly tapir holding zoological institutions in North America, Europe, Latin America and Asia. (Please see my note on the Symposium, where I include a complete list of

all our supporters). We could not be more grateful for their contributions and, most importantly, their confidence in the importance of this meeting.

During the entire process of the organization of this conference, we had the full support from our major partner on this challenge, the Fundación Temaikèn, and for that I will always remain thankful. On behalf of the TSG membership and all symposium participants, I would like to thank the entire Temaikèn staff for all their assistance in making this the best Tapir Symposium ever. It was a pleasure working with all these amazing people that make Temaikèn such a special place.

Another partner in the organization of this conference was – as always – the Houston Zoo, and for the support from these people – including Rick Barongi, Bill Konstant, Alberto Mendoza, Kelly Russo, and Jen McLain – I will always be grateful. We, the Tapir Specialist Group, are extremely lucky to have the Houston Zoo working with us and contributing their time, efforts and financial resources to make the TSG what it is today.



Fig. 1. Entrance of the Temaikèn Zoo in Escobar, Buenos Aires, Argentina, the main partner of the TSG on the organization of the Third International Tapir Symposium. Photo credit: Temaikèn.

An important event conducted during the symposium was an auction to raise funds for the TSG Conservation Fund (TSGCF). Attendees were asked to bring typical items from their home countries to sell at the silent and live auctions. We were able to raise US\$ 3,000, and these funds will be distributed in the form of small grants to tapir field and captivity conservation projects through a selective process to be conducted in August 2006.

The last session of the conference was the TSG Plans for Action 2006-2007 Workshop. The main goal of this session was evaluate what the TSG has accomplished over the past two years and carry out a new strategic planning for the group, setting short-term goals and actions for the next two years in order

to be more effective in terms of tapir conservation worldwide. Dr. Bengt Holst, an active member of the Tapir Specialist Group and Convener of the European Network of the IUCN/SSC Conservation Breeding Specialist Group (CBSG), facilitated the workshop. The final outcome of the TSG Plans for Action Workshop was a list of thirty-two (32) priority goals and one hundred and two (102) specific actions that the TSG will put into practice over the next two years (2006-2007) in order to reach the goals between now and the Fourth International Tapir Symposium to be held in April 2008. Long-term issues directly related



Fig. 2. Members of the planning committee of the Third International Tapir Symposium. From left to right: Alberto Mendoza, Manager of Latin American Initiatives, Houston Zoo, USA; Guillermo Ruiti, Jefe de Operaciones, Fundación Temaikèn, Argentina; Viviana B. Quse, Senior Veterinarian, Fundación Temaikèn, Argentina; and Patrícia Medici, Chair, TSG, Brazil.

to the conservation of the four tapir species and their habitats were not addressed during this workshop, but have been carefully discussed throughout the process of revision and updating of the first edition of the IUCN/SSC *Tapir Status Survey and Conservation Action Plan* (Brooks *et al.* 1997), which is well underway. The final version of the TSG Plans for Action 2006-2007 is already available online in downloadable format from the TSG Website and I would like to ask all TSG members and symposium participants to please review the document and let me know if you have any questions, comments, suggestions, criticisms etc. This document is extremely important for the TSG and will guide our work over the next two years. We need our entire membership to be familiar with our priority goals and actions as a group. Additionally, I would like to invite all of you to please get involved with our activities, committees, taskforces and working groups, and contribute as much as you can. Most importantly, each of the 102 actions is attached to the name of a

person responsible for completing it and we do expect that those named will step up to the task.

For further, detailed information about the conference please refer to the Third International Tapir Symposium Report included in this issue.

During the conference in Buenos Aires we made several changes to the TSG Membership. A few members were removed from the group, mostly because of lack of participation in the group's activities, and new members were added. We now have 104 members, including field researchers, educators, veterinarians, governmental agencies and NGO representatives, zoo personnel, university professors and students, from 27 different countries worldwide: Argentina, Australia, Belize, Bolivia, Brazil, Canada, Colombia, Costa Rica, Denmark, Ecuador, France, French Guiana, Germany, Guatemala, Honduras, Indonesia, Malaysia, Mexico, Myanmar, Republic of Panama, Paraguay, Peru, Thailand, The Netherlands, United Kingdom, United States, and Venezuela.

Additionally, we made several changes in our TSG Structure. We launched our Ethics Committee, which comprises five TSG members who have kindly made themselves available, should the need for this committee arise because of inappropriate behavior by or amongst TSG members. Of course, we hope this committee will never be needed; but it is better to be prepared. We have replaced a few TSG officers: Diego J. Lizcano from the Pamplona University in Colombia, is our new Species Coordinator for Mountain Tapir; Viviana B. Quse, Senior Veterinarian at the Temaikèn Foundation in Argentina, is our new Coordinator for the TSG Zoo Committee; and Veterinarian Javier Adolfo Sarria from Colombia is our new Coordinator for the TSG Veterinary Committee.

Three Taskforces (Action Planning Implementation Taskforce; Re-Introduction/Translocation Taskforce; and Confiscated Tapirs Taskforce), and two Working Groups (Human/Tapir Conflict Working Group, and Malay Tapir Working Group) were created to deal with specific tapir conservation issues.

The Action Planning Implementation taskforce will be working hand-in-hand with the TSG Action Planning Committee. It includes all TSG Species Coordinators and a few other TSG members who will be responsible for guaranteeing that the new TSG Action Plans produced through the PHVA Workshops will be constantly reviewed and the actions fully implemented.

The Re-Introduction/Translocation taskforce is formed by a small group of TSG members and will be working in coordination with the IUCN/SSC Re-Introduction Specialist Group (RSG) on the development of tapir re-introduction and translocation guidelines. These guidelines will follow the format of those developed for non-human primates and African



Fig. 3. Group picture of participants of the Third International Tapir Symposium.

elephants and will eventually be available from the websites of both the TSG and RSG websites.

The Confiscated Tapirs taskforce will be working on the development of TSG guidelines for local wildlife authorities to make the best decisions with regards to confiscated tapirs. As more and more tapir habitat is encroached upon by local populations and international development, there will, no doubt, be more situations where the Tapir Specialist Group and local zoo and field biologists will be asked to assist in the confiscation and disposition of tapirs. See for example the article on the confiscated tapir "Lucia" in this issue of the TCN.

The Human/Tapir Conflict Working Group will be addressing the human/tapir conflict issue where it appears to be a significant problem. The first task of this group will be the development of a standard questionnaire to assess the perceived levels of crop raiding by tapirs in countries where it occurs.

The Malay Tapir Working Group was set up due to concern being expressed about the ongoing problem of the lack of research being conducted on the species over its range and the difficulties experienced in obtaining funding. The group consists of TSG members and officers currently based in Asia. The group will attempt to encourage researchers, conservation organizations, governmental institutions, and donors, to turn their attention to this endangered species.

The updated versions of both our TSG Membership and TSG Structure directories are included in this issue. Please review your name, title and details and let us know if these must be updated.

An important announcement in this issue is the launching of the TSG Virtual Library (TSGVL). This is the brainchild of our TSG member Harald Beck (Assistant Professor & Curator of the Mammal Museum of the Department of Biological Sciences, Towson University, USA), who hence becomes our Virtual Library Manager. Harald has been working on this project for almost one year and it is fantastic news that most of the published works on tapirs will be available in one website – ours!! I know of no other species or group of species that has all bibliographic references compiled and available in one site. So, this is not just a very useful website, but also pioneering conservation work! I am thoroughly excited about the TSGVL, as I am certain it will help many of us achieve our conservation and research goals. Harald makes a call to all of us to assist in completing and maintaining the TSGVL updated. Speaking on behalf of all of us members of the TSG, I would like to thank Harald for this amazing achievement. It is now up to us to use it to its full worth and keep it updated.

Also, I would like to take this opportunity to announce that the "Lowland Tapir Conservation Workshop: Population and Habitat Viability Assessment (PHVA)", our last action planning workshop, will be held in April 2007 in Sorocaba, São Paulo State, Brazil. The main organizers of this workshop will be the TSG, Sorocaba Zoo in Brazil, Houston Zoo in the United States, Brazilian Network of the IUCN/SSC Conservation Breeding Specialist Group (CBSG), and AZA and EAZA Tapir Taxon Advisory Groups (TAGs). We are already actively working on the organization

and fundraising for this meeting, which will include participants from all the lowland tapir range countries (Argentina, Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname and Venezuela). We will make sure to keep you all posted about the organization of our last PHVA Workshop.

Last but not least, we would like to remind you that the new, updated versions of the Malay, Mountain and Baird's tapirs Action Plans are available for download on the TSG Website. The Mountain Tapir and Baird's Tapir Action Plans are only available in Spanish, and we are currently looking for volunteers to translate the documents into English.

Patricia Medici

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TSG COMMITTEE REPORTS

Marketing Committee and Website

By *Gilia Angell*

The TSG Marketing Committee met in person at the Third International Tapir Symposium. Together, individuals from Colombia, Argentina, Ecuador and the United States created new marketing goals for the next two-year time frame. It became evident that the TSG website needs to reach a broader Latin American audience. Juliana Rodriguez of Colombia graciously accepted my invitation to be co-coordinator with me, and to manage the Spanish language projects. Thank you Juliana!

Some of the Marketing Committee's short term goals are shown in the following table:

Action	Purpose	Tools / Method
Create a more formal press kit for media bodies to use; this includes pictures, information blurbs etc.	To create broader, more accessible materials for media organizations To offer support to TSG members wishing to approach media	Posting on web-site, distribution of electronic copies via our FTP server or disc, adding photos submitted to photo collection
Create Spanish-language TSG mirror site	Increase accessibility to Latin American audiences	Translation of key pages on the site by committee members
With the TSG Education Committee, create a CD-ROM to distribute to country coordinators and in-situ/ex-situ educational efforts	Information about tapirs easier to understand and more accessible	
Create a children's page for the TSG site in Spanish and English	Response to a demand from web users for kids materials, the need to share materials among TSG members, and a desire to reach the „next generation of conservationists“	Collection of materials and ideas from TSG members that they have used in the field when working with kids
Secure more tapir media placements	2005 proved to be a lucrative year both in tapir awareness and in the funding support those media placements generated. This motivated new placements	Using TSG marketing materials, approach media organizations, pitch stories and spread a consistent message about tapir conservation

(Additional goals from the TSG Symposium will be posted in the Symposium Report. If you'd like to see the complete Marketing list, please contact gilia_angell@earthlink.net)

As you can see from the list above, increased media coverage of tapirs and the work of TSG is a paramount priority. For all media coverage it is important that the TSG message about tapirs is consistent. Carlos Pedraza from Colombia has translated our press kit into Spanish; it now resides on the Downloads page on the TSG site. Our press kit should help all TSG members explain what the TSG does in simple terms.

Feel free to distribute the press kit along with any other information you share with the media.

As mentioned in the December 2005 *Tapir Conservation* Newsletter, author Jeffery Masson agreed to include a chapter on tapirs in his upcoming book *Jeffery Masson's 100 Favorite Animals*. A photo of a wild tapir by TSG member Gilia Angell will accompany the chapter. The book is slated for publication late 2006.

Please join us in helping to achieve increased tapir awareness/tapir world domination! We welcome any comments or materials. Please email Gilia Angell (gilia_angell@earthlink.net) or Juliana Rodriguez (mjuli2@gmail.com).

Website Report

More materials and technology have been added and/or is in the works for our site, including the achievements listed below:

- TSG now has an FTP site for large file transfers!
- The site will host the first-of-its-kind virtual library of tapir articles!
- The new Tapir Photo Collection – an online resource for media and potential fundraising via photo usage fees. We are always accepting your best pictures to add to the collection.
- Spanish version of the Homepage launched by June 2006.
- Four committee pages posted and updated (Veterinary, Genetics, Marketing & Zoo) – Got a committee? We need your info!
- Continued aesthetic and navigational improvements to the website

Please contact Gilia Angell (gilia_angell@earthlink.net) with any comments or content for the site. I am always willing to build your pages for you, if you give me words and photos.

Thanks.

Gilia Angell

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Veterinary Committee

By Javier Sarria

After a recess, the TSG Veterinary Committee has restarted its activities providing support to zoo and field veterinarians facing tapir health matters and also with new projects and activities, all focused onto bring technical and scientific support to veterinarians and other researchers working with tapirs, and the improvement of tapir veterinary science.

The Committee will focus its efforts in:

- The creation of manuals for zoo and field professionals:
 - * The Tapir Necropsy Protocol and the Tapir Disease Manual compiling information about diseases that affect tapirs in captivity and in the wild, sampling protocols and anesthesia protocols, have been written and are under revision.
- The re-design and improvement of the TSG Veterinary Committee webpage, in order to provide basic information about physiologic and anatomic features to veterinarians and other researchers working with tapirs.
 - * The information of tapir normal parameters from Med ARKS database has been kindly compiled and provided by Dr. Sonia Hernandez-Divers, and the compilation on tapir anatomic features is under development.
- To stimulate the creation of new research lines in tapir medicine:
 - * Contacts with specialists in wildlife andrology have been established in order to develop techniques for the semen collection in tapirs.
 - * Contacts with pathologists will be established in order to start research activities on the most important diseases affecting tapirs.

For further information, feel free to keep in contact with the TSG Vet Committee coordinator: Javier Sarria (jasarrip@yahoo.com).

Javier Adolfo Sarria Perea

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Human/Tapir Conflicts Working Group

Preliminary Data and Further Investigations

By Siân S. Waters, Silvia Chalukian &
Diego Lizcano

Human/wildlife conflicts have been identified by conservation organizations as one of the most important threats to wildlife in this century. Most studies of the problem have taken place in Africa, where it has reached epidemic proportions and often causes loss of both human and animal life.

The possibility that human/tapir conflicts might be a threat to tapirs was brought up during the Baird's Tapir PHVA Workshop held in Belize in August 2005. Eight tapir skeletons had been found in a protected area in Belize. These animals had been shot whilst feeding from mammey apple trees (*Mammea americana*). It appeared that paca also feed from the fallen fruit of this particular tree and are shot for food (O. Ulloa, personal communication; H. Wohlers, personal communication). It is unclear whether the tapir meat is utilized and/or whether the animals are killed merely because they compete for the fruit with the favored prey item, which is the paca. The extent of HTC in Belize will be a focus for further research during a forthcoming survey of Baird's tapir, Yucatan spider monkey and black howler monkey that is being undertaken in collaboration with the Belize Department of Forestry.

Documented information regarding HTC was available for the mountain tapir in Colombia, where tapirs raided potato crops of subsistence farmers (Diego Lizcano, personal communication), and for an extreme incident where both crop raiding lowland tapir and avenging farmer lost their lives in Brazil (Haddad et al. 2005). Requests for information from TSG members prior to the workshop yielded further data and prompted for more research. The problem also exists in Sumatra, Indonesia, although its extent is still unknown (Wilson Novarino, personal communication; Deborah Martyr, personal communication), and there have also been reports of incidents in Chiapas, Mexico (Epigmenio Cruz Aldán, personal communication) and in Costa Rica (Fabricio Carbonnel, in. litt.).

A workshop in human/tapir conflicts was held at the recent Third International Tapir Symposium in Argentina, in an initial attempt to assess if conflict with

humans was a potential threat to tapir conservation over their range. The conflicts were expected to be related to crop raiding tapirs and their retributive killing, and this was indeed the case.

The occurrence of human/tapir conflict was deemed to be of significant concern for tapir conservation to warrant further investigation. To this end, a TSG Working Group was formed in order to coordinate further work on this subject and to develop a standardized questionnaire to be used in initial assessments of local inhabitants' perceptions of the extent of the problem. Further work will focus on developing ways of mitigating the conflict using simple, inexpensive but efficient methods of keeping tapirs out of crops. The members of the Human/Tapir Working Group are: Silvia Chalukian (Argentina), Epigmenio Cruz Aldán (Mexico), Diego Lizcano (Colombia), Wilson Novarino (Sumatra), Leonardo Salas (Venezuela/PNG), Oscar Ulloa (Belize) and Siân Waters (UK - Group Coordinator).

Acknowledgements

Many thanks to TSG members Humberto Wohlers & Oscar Ulloa, (Belize), Debbie Martyr & Wilson Novarino (Indonesia), Fabricio Carbonnel (Costa Rica), Epigmenio Cruz Aldán (Mexico) and Viviana Guse, (Argentina) for sharing their information with us. Thanks to Patricia Medici for encouraging us to hold the workshop.

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SYMPOSIUM REPORT

Third International Tapir Symposium

**Buenos Aires, Argentina,
26-31 January 2006**

By Patricia Medici & Alberto Mendoza

The main purpose of the International Tapir Symposium is to bring together a multi-faceted group of tapir experts and conservationists, including field biologists and researchers, educators, husbandry and captive management specialists, veterinarians, government authorities and non-governmental organization representatives, academicians, politicians, and other

TAPIR SYMPOSIUM



2006 ARGENTINA

key players in the development and implementation of tapir conservation and management programs. To this end, participants conduct overviews of current tapir research (*in-situ* and *ex-situ*), conservation and management issues, thereby generating the necessary information to promote action

planning in terms of priorities for tapir conservation in Central and South America, and Southeast Asia. Also, this conference aims to establish conservation partnerships, and develop and maintain a communication network of tapir conservationists worldwide that would facilitate the completion of conference recommendations and their evaluated in future meetings.

The First International Tapir Symposium was held in November 2001, in Costa Rica, and attracted 95 participants from 22 countries, proving to be a major boost for tapir conservation. Never before had there been so many tapir experts and conservationists, key players in the development of tapir conservation programs, assembled under one roof to share knowledge and address the challenges ahead. In all, 48 papers and 9 posters were presented. The Second International Tapir Symposium was held in January 2004, in Panama, and attracted 80 participants, including tapir conservationists from 19 countries. At that



Fig. 1. Keynote Speaker Alan H. Shoemaker, Permit Advisor of the AZA Tapir Taxon Advisory Group (TAG) and TSG Red List Authority.



Fig. 2. Keynote Speaker Leonardo Salas, Population Biologist with Wildlife Conservation Society Papua New Guinea, and Editor of the Tapir Conservation Newsletter.



Fig. 3. Keynote Speaker Matthew Colbert, Associate Researcher with the Texas University at Austin, United States, and TSG Evolution Consultant.



Fig. 4. Leonardo Salas and Keynote Speaker Dom Álvaro Ovidio Paya, Governor of the Cabildo Indígena de Gaitania of the Nassa Wesh indigenous people in Tolima, Colombia.



Fig. 5. Malay Tapir Paper Session. Presenter Wilson Novarino, Professor, Andalas University, Indonesia, and TSG Country Coordinator for Indonesia.



Fig. 6. Baird's Tapir Paper Session. Presenter Eduardo Naranajo, Professor & Researcher, El Colegio de la Frontera Sur, Mexico, and TSG Coordinator for Baird's Tapir.

meeting, 28 papers and 21 posters were presented. The final session of the Second Symposium consisted of a strategic planning workshop which developed a list of 27 priority goals and 55 specific actions that the TSG should put into practice during 2004 and 2005.

The Third International Tapir Symposium was held in Buenos Aires, Argentina, from January 26 to 31, 2006. This was yet another very successful meeting of the TSG. We counted with 95 participants, including tapir conservationists from 18 countries worldwide (Argentina, Bolivia, Brazil, Canada, Colombia, Costa Rica, Denmark, Ecuador, Guatemala, Honduras, Indonesia, Malaysia, Mexico, Peru, Spain, United Kingdom, United States, and Venezuela). Approximately 50% of the Tapir Specialist Group members attended the conference; therefore the group was very well represented. Tapir experts from many different backgrounds and institutional affiliations, and who are carrying out a variety of research projects had the opportunity to attend, meet each other in person, exchange ideas and experiences, and establish partnerships.

The first part of the conference consisted of paper and poster sessions covering a wide range of issues relevant to tapir conservation, such as tapir ecology, field research, population management, threat assessments, husbandry and captive management, veterinary issues, genetics, implementation of action plans, habitat evaluations, research methodologies, identification of priority areas for tapir conservation, Geographical Information Systems (GIS), environmental education etc. Paper sessions were organized by species and each speaker had 15 minutes for their presentations and 5 minutes for questions. Presentations were made in either English or Spanish and simultaneous translation was available throughout the conference. In total, 16 papers were presented: three in the Malay Tapir Session, three in the Baird's Tapir Session, three in the Mountain Tapir Session, and seven in the Lowland Tapir Session. Twenty-three posters were exhibited throughout the first three days of the conference and presenters were on hand to discuss their respective posters during the coffee breaks. Ten were about lowland tapirs, two about Malay tapirs, six about mountain tapirs, three about Baird's tapirs, and two involving more than one species of tapir.

Four keynote speakers made presentations throughout the conference. Alan Shoemaker from the United States, Red List Authority for the Tapir Specialist Group and Permit Advisor for the AZA Tapir Taxon Advisory Group (TAG), was the first keynote speaker of the conference and presented an overview of his involvement with tapir conservation and the TSG, as well as the importance of the group's activities in terms of developing an updated action plan for tapirs. Don

Álvaro Ovidio Paya, governor of the Cabildo Indígena de Gaitania of the Nassa Wesh indigenous people in Tolima, Colombia, made a very inspiring presentation about the view of this community on the conservation of the mountain tapir in the region. Dr. Matthew Colbert with the University of Texas, United States, gave a speech about how to understand and interpret tapirs in fossil records. Population biologist Dr. Leonardo Salas, with Wildlife Conservation Society – Papua New Guinea, made a presentation about techniques for tapir population monitoring, discussing the needs, tools and challenges involved in the use of these methods.

Another session conducted in the first part of the conference was the TSG Committees Reports Session. Siân S. Waters, Former Coordinator of the TSG Zoo Committee; Anders Gonçalves da Silva, Coordinator of the TSG Genetics Committee; Gilia Angell, Coordinator of the TSG Marketing Committee, and TSG Webmaster; and Kelly Russo, Coordinator of the TSG Education & Outreach Committee, gave reports about the work of those committees during the past two years. Patrícia Medici, Coordinator of both the TSG Fundraising and Action Planning Committees gave reports about the accomplishments of these committees during the Fundraising and Action Planning for Tapir Conservation workshops.

The second part of the conference was devoted to workshops addressing specific topics relevant to the conservation of the four tapir species and their remaining habitats in Central and South America, and Southeast Asia: (1) Action Planning for Tapir Conservation, (2) Fundraising, (3) Confiscated Tapirs, (4) Tapir Re-Introduction and Translocation, (5) Human/Tapir Conflicts, and (6) Tapir Husbandry and Captive Management in Latin America.

The Action Planning for Tapir Conservation Workshop included presentations about the many action planning initiatives being currently carried out by the Tapir Specialist Group. Patrícia Medici, Chair of the TSG and Coordinator of the TSG Action Planning Committee, gave a complete report about the activities of the committee over the past two years (2004 and 2005), including two PHVA workshops (mountain and Baird's tapirs), and support for the development of the National Action Plans. Diego J. Lizcano from Colombia, TSG Coordinator for Mountain Tapir, made a presentation about the Mountain Tapir PHVA Workshop held in Colombia in 2004, and provided the participants with an overview of the outcomes of the meeting. Andrew Taber, Executive Vice President for Programs of the Wildlife Trust in the United States, gave a speech about the preliminary results of a range-wide status analysis that is currently being conducted for lowland tapirs. Damian Rumiz, with Wildlife Conservation Society



Fig. 7. Lowland Tapir Paper Session. Presenter Patrícia Medici, Research Coordinator, IPÊ – Instituto de Pesquisas Ecológicas, Brazil, and TSG Chair.



Fig. 8. Poster presenter Elliot Handrus, Mountain View Conservation Society, and TSG Member.



Fig. 9. Poster presenter Carlos Fernández, Grupo Ecológico Defensores de la Naturaleza, Palomino, Colombia.

ORGANIZERS

IUCN Species Survival Commission (SSC)
 Tapir Specialist Group (TSG)
 Fundación Temaikén, Argentina
 Houston Zoo Inc., United States

**INSTITUTIONAL SUPPORT**

American Zoo and Aquarium Association (AZA)
 Tapir Taxon Advisory Group (TAG)
 European Association of Zoos and Aquariums (EAZA)
 Tapir Taxon Advisory Group (TAG)
 Fundación Temaikén, Argentina
 Houston Zoo Inc., United States
 Copenhagen Zoo, Denmark
 IPÊ - Institute for Ecological Research, Brazil

**FINANCIAL SUPPORT**

Albuquerque Zoo, United States
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 American Association of Zoo Keepers (AAZK),
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 American Association of Zoo Keepers (AAZK),
 El Paso del Norte Chapter, United States
 American Association of Zoo Keepers (AAZK),
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Brookfield Zoo, Chicago Board of Trade Conservation Group,
 United States
 Cali Zoological Foundation, Colombia
 Chester Zoo, North of England Zoological Society,
 United Kingdom
 Cheyenne Mountain Zoo, United States
 Commonwealth Zoological Corporation (Franklin Park Zoo),
 United States
 Commonwealth Zoological Corporation (New England Zoo),
 United States
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 Houston Zoo Inc., United States
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 IPÊ - Instituto de Pesquisas Ecológicas, Brazil
 Jackson Zoological Park, United States
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 Los Angeles Zoo, United States
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 Mesker Park Zoo, United States
 Mountain View Conservation & Breeding Center, Canada
 Nashville Zoo at Grassmere, United States
 Omaha Zoological Society, Henry Doorly Zoo, United States
 Palm Beach Zoo at Dreher Park, United States
 Parc Zoologique d'Amnéville, France
 Parc Zoologique de Lille, France
 Reid Park Zoo, United States
 Rotterdam Zoo, The Netherlands
 San Diego Zoo, United States
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 Santa Ana Zoo, United States
 Sedgwick County Zoo, United States
 Singapore Zoological Gardens, Singapore
 Ueno & Tama Zoological Gardens,
 Tokyo Zoo Conservation Fund, Japan
 Universidad Nacional de Colombia (UNAL), Colombia
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 Virginia Zoological Gardens, United States
 White Oak Conservation Center, United States
 Wildlife Conservation Society - Papua New Guinea
 Wildlife World Zoo Inc., United States
 Woodland Park Zoo, United States
 World Association of Zoos and Aquariums (WAZA), Switzerland
 Zlin Zoo, Poland
 Zoo Conservation Outreach Group (ZCOG), United States
 Zoológico "Miguel Álvarez del Toro" (ZOOMAT), Mexico

(WCS) Bolivia, made a presentation about the perspectives for the conservation of lowland tapirs in Bolivia. TSG Country Coordinators attending the conference made presentations about their progress on the development of National Action Plans for Tapir Conservation in their respective countries. The countries represented were: Argentina (Silvia Chalukian), Brazil (Patrícia Medici), Colombia (Olga L. Montenegro), Ecuador (Leonardo Ordoñez Delgado & Fernando Nogales), Guatemala (Manolo García on behalf of TSG Country Coordinator José Roberto Ruiz Fuamagalli), Honduras (Nereyda Estrada Andino), Mexico (Epigmenio Cruz Aldán), Peru (Jessica Amanzo & Diego Lizcano on behalf of TSG Country Co-Coordinator Richard E. Bodmer), and Indonesia (Wilson Novarino).

The Fundraising Workshop included presentations about the TSG initiatives to raise funds for its own activities, as well as for field projects. Patrícia Medici, Chair of the TSG and Coordinator of the TSG Fundraising Committee, gave a detailed report about the activities of the committee over the past two years (2004 and 2005), including raising funds for the TSG meetings such as the PHVA workshops and symposium, as well as the committee's role in terms of assisting tapir researchers on identifying potential donors for their work. William Konstant, Director of Conservation and Science of the Houston Zoo Inc., and Deputy-Chair of the TSG, made a presentation including a complete overview of the TSG's fundraising success over the past years, and the partnerships the group has been able to establish with zoological institutions worldwide. Diego Lizcano, from the University of Pamplona in Colombia, gave a speech about the potential competition between the four tapir species and large, charismatic carnivores for funding.

The Confiscated Tapirs Workshop, organized by Rick Barongi, Director of the Houston Zoo Inc. in the United States, promoted the discussion about tapir confiscations addressing the complex issue of wildlife protection in range countries. This workshop proposed the development of TSG guidelines for local wildlife authorities to make the best decisions with regards to confiscated tapirs. As more and more tapir habitat is encroached upon by local populations and international development, there will, no doubt, be more situations where the Tapir Specialist Group and local zoo and field biologists will be asked to assist in the confiscation and disposition of tapirs. To initiate the discussions, two recent case studies of confiscated tapirs in Colombia and Panama were reviewed, as well as the different strategies and rationales involved in each case.

The Tapir Re-Introduction and Translocation Workshop was organized by Siân Waters, TSG Deputy-Chair, and its main goal was to initiate the process of developing re-introduction and translocation guide-



Fig. 10. Workshop Confiscated Tapirs. Presenter Rick Barongi, Director, Houston Zoo, United States, and TSG Member.



Fig. 11. Workshop Tapir Re-Introductions and Translocations. Participant Juan Pablo Juliá, Reserva Experimental Horco Molle, Argentina, and TSG Member.



Fig. 12. TSG Committees Reports. Presenter Gilia Angell, Coordinator, TSG Marketing Committee & Website.



Fig. 13. TSG Plans for Action 2006-2007 Workshop. Working Groups.



Fig. 14. TSG Plans for Action 2006-2007 Workshop. Prioritization of goals.

lines for tapirs in collaboration with the IUCN/SSC Re-Introduction Specialist Group (RSG). Siân Waters gave a brief introduction to the IUCN RSG Guidelines for Non-Human Primate Re-Introductions, the potential need for actual tapir management was discussed, and a Taskforce made up of TSG members was created with the responsibility of developing the guidelines.

The Human/Tapir Conflict Workshop was also organized by Siân Waters, TSG Deputy-Chair, and included presentations about human/tapir conflict case studies in Argentina, Colombia and Indonesia. Siân Waters gave a general overview about human/wildlife conflict issues. Diego Lizcano, from the University of Pamplona in Colombia, made a presentation about the conflict between humans and mountain tapirs in the Andes of Colombia. Silvia Chalukian made a first presentation about the impact of cattle on lowland tapirs in the Yungas Forest in Argentina, and a second presentation

on behalf of Guillermo Nicolossi about the impact of irrigated plantations of sugar cane and citrus fruit on lowland tapirs, again in Argentina. Wilson Novarino from the Andalas University in Sumatra, Indonesia, gave a speech about the conflict between subsistence farmers and Malay tapirs in Indonesia.

The Tapir Husbandry and Captive Management in Latin America Workshop was organized by Viviana B. Quse, Senior Veterinarian of the Fundación Temaikèn in Argentina, and Alberto Mendoza with the Houston Zoo Inc. in the United States. Alberto Mendoza gave a speech addressing tapir captive management throughout Latin America. Viviana Quse made a presentation about the same topic, but focusing on Argentinean zoological institutions. Pedro Aguilar from the Zoológico Miguel Álvarez del Toro (ZooMat) in Mexico made a presentation about tapir husbandry at his institution.

The last session of the conference was the TSG Plans for Action 2006-2007 Workshop. The main objective of this session was to carry out a strategic planning for the Tapir Specialist Group, and set short-term goals and actions that the group will be undertaking over the next two years (2006-2007) in order to be more effective in terms of tapir conservation worldwide. Dr. Bengt Holst, Member of the Tapir Specialist Group and Convener of European Network of the IUCN/SSC Conservation Breeding Specialist Group (CBSG) facilitated the workshop.

Initially, conference participants were asked to prepare a list of five (5) issues they believed the TSG should be addressing as a group over the next two years. Participants were requested to ask themselves "What issues should the TSG address in order to be



Fig. 15. TSG Plans for Action 2006-2007 Workshop. Prioritization of goals.

more effective in terms of tapir conservation?" The workshop facilitator reviewed the lists of issues prepared by the symposium participants and defined the workshop dynamics. Six (6) different working group topics were identified based on the issues suggested earlier: 1.) Research and Technical Guidelines; 2.) In-Situ Conservation (Population and Habitat); 3.) Ex-Situ Management; 4.) Marketing & Education / Public Awareness; 5.) Fundraising; and 6.) Action Planning for Tapir Conservation.

As a first step, each working group was given the tasks of reviewing the issues and developing short-term goals for TSG activities related to the main topics they were covering. The goals identified by each one of the working groups during these initial deliberations were presented in a plenary session, to guarantee everyone had an opportunity to contribute to the work of the other groups, and to ensure that issues and goals were carefully reviewed and discussed by the group. Once all the identified goals were presented, each participant was asked to rank them in order of priority. The workshop facilitator then compiled the individual scores in order to obtain a group prioritization of TSG goals. As a second step, all working groups re-assembled and were then asked to develop a list of specific actions that TSG needs to take in order to reach these higher-priority goals. For each one of the actions, a deadline, an estimated cost, a person to be responsible for its achievement, potential collaborators, and indicators of success were established.

The final outcome of the TSG Plans for Action Workshop was a list of 32 priority goals and 102 specific actions that the TSG will put into practice over the next two years (2006-2007) in order to reach the goals between now and the Fourth International Tapir Symposium to be held in April 2008.

The final version of the TSG Plans for Action 2006-2007 is available online in downloadable format from the TSG Website. Please read it carefully. We expect that, if you are named as responsible for completing one of the actions, you will step up to the task!

Another event conducted during the symposium was an auction to raise funds for the TSG Conservation Fund (TSGCF). Attendees were asked to bring typical items from their home countries to sell at the silent and live auctions. William Konstant with the Houston Zoo Inc., United States, and Deputy-Chair of the TSG, with the help of Gilia Angell with Amazon.com, United States, and Kelly Russo and Jennifer McLain with the Houston Zoo Inc., kindly organized and conducted the auction and the symposium raised US\$ 3,000 for the TSGCF.

The main organizers of the conference were the Tapir Specialist Group (TSG), Houston Zoo in the United States, and Fundación Temaikèn in Argentina.



Fig. 16. Live Auctions. Bill Konstant, Director of Conservation and Science of the Houston Zoo, United States, and TSG Deputy-Chair – Our auctioneer in Buenos Aires!



Fig. 17. Silent Auctions. Participants donated typical handcrafts from their countries and these were auctioned to raise funds for the TSG Conservation Fund.



Fig. 18. Participants of the Third International Tapir Symposium had an entire morning to explore the Temaikèn Zoo and the Conservation and Reproduction Center (CRET).



Fig. 19. Houston Zoo staff during visit to the CRET. From right to left: Jennifer McLain, Rick Barongi, Don Kendall, Kelly Russo, and Bill Konstant.



Fig. 20. Temaikèn staff during barbecue offered by the Fundación Temaikèn to symposium participants in the last day of the conference.



Fig. 21. Typical gaucho dancers performed for symposium participants in the last day of the conference.

The institutional supporters that collaborated with the organization were the Copenhagen Zoo in Denmark, American Zoo & Aquarium Association (AZA) Tapir Taxon Advisory Group (TAG), and European Association of Zoos and Aquaria (EAZA) Tapir Taxon Advisory Group (TAG). To all of them we want to extend our very warmest thanks.

We also had the financial and/or institutional support from over 70 conservation organizations from around the globe, mostly tapir holding zoological institutions in North America, Europe, Latin America and Asia. (see page 12 for a complete list of institutional and financial supporters of the Third International Tapir Symposium). Thanks to the support from these organizations we were able to cover the conference's expenses and sponsor the participation of 19 key participants from 8 tapir range countries, who otherwise could not have attended the conference.

During the entire process of the organization of this conference, we had the full support from our major partner on this challenge, the Fundación Temaikèn, and for that we could not be more grateful. Temaikèn is one of the most impressive zoological institutions in the world and truly a special place. On behalf of the entire TSG membership and all TSG officers, we would like to thank the entire Temaikèn staff for all their assistance in making this the best Tapir Symposium ever. We would like to give very special, huge thanks to Viviana Quse, Guillermo Ruitti and Gabriel Aguado for all their hard work in organizing the local logistics and so many other aspects of the conference. Thank you all very, very, very much for all your help, support and friendship.

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PROJECT UPDATES

Preliminary Analysis of Footprints for Lowland Tapir Identification

By Zoe Jewell, Sky Alibhai & Silvia Chalukian

WildTrack worked with the Tapir Research and Conservation Project of Northwest Argentina in 2004 to look at the feasibility of developing a footprint identification technique (FIT) for tapirs, encouraged by positive results obtained with rhinoceros (Jewell *et al.*, 2001). The FIT was thought to be particularly suitable and inexpensive to use with tapirs in a National Park, being a goal of this part of the project to count and attempt to identify animals mainly through non-invasive methods.

Fifty-seven digital photographs of left hind footprints from six different known lowland tapirs were submitted for a trial analysis to assess the feasibility of the FIT. These footprints came from three wild animals from El Rey National Park (two adults and one juvenile) and three captive animals from the Fauna Station of the Salta Provincial Government (two males and one female) (Figs. 1 & 2).

We constructed the FIT algorithm (through canonical analysis) to identify each animal based on its



Fig. 1. Leo Lizárraga encourages a tapir to pass through a sandy path in order to take footprint photographs, at the Fauna Station of the Salta Provincial Government, Argentina.



Fig. 2. Footprint of Chiru, a young male from the Fauna Station, Salta, Argentina.

footprint's geometric profile and the results were very encouraging despite small sample sizes. All six tapirs were identifiable using FIT. Figure 3 shows a clear separation of all five adult tapirs along the two canonical variable axes; the sixth (juvenile) was even further apart on the chart. Figure 4 shows the result of a test by attempting to separate a subset of footprints of one tapir and give them another name. The FIT still matches them to the correct animal.

These encouraging results have led to Silvia Chalukian collecting more footprints for further testing, which will be analyzed shortly. Recently, WildTrack trials with tapirs have been helped greatly by Patricia Medici, Chair of the IUCN/SSC Tapir Specialist Group (TSG), who has encouraged tapir researchers to collect more print photographs for analysis, and by Jeremy Radachowsky, who has submitted a collection of photographs of Baird's tapir prints. Preliminary analyses of Jeremy's dataset suggest that FIT may also be able to determine the sex and age category of Baird's tapirs.

WildTrack is looking forward to working with as many members of the Tapir Specialist Group as possible to validate its FIT technique at field sites and hopefully attract funding for further development.

References

- Jewell, Z. C., S. K. Alibhai, and P. R. Law. 2001. Censusing and monitoring black rhino (*Diceros bicornis*) using an objective spoor (footprint) identification technique. *Journal of the Zoological Society of London* 254:1-16.

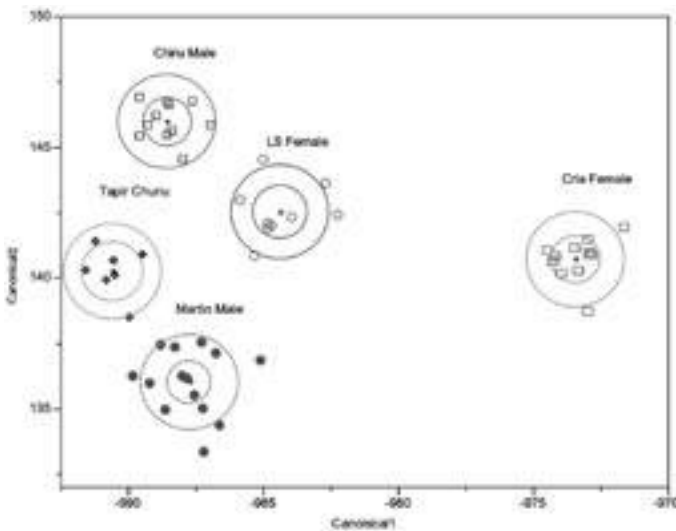


Fig. 3. Clear separation of individual tapirs' morphometric data from footprints along two canonical variable axes. These are very promising results that the FIT algorithm may work very well for tapirs.

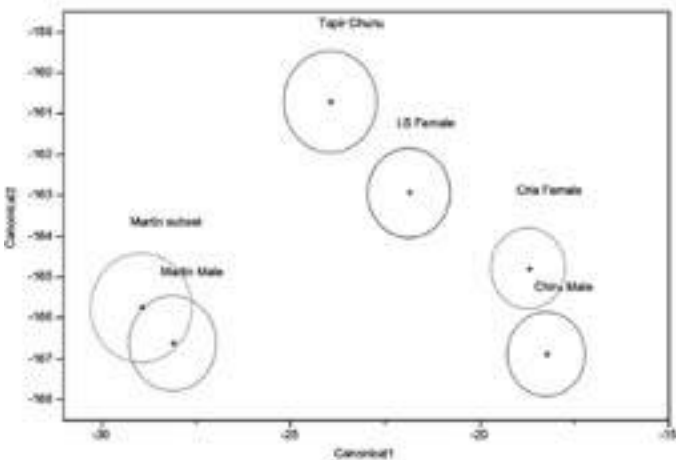


Fig. 4. Testing the FIT – a separate subset of footprint measurements are matched to the correct animal.

Zoe Jewell & Sky Alibhai

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The TSG Library becomes Virtual

By Harald Beck

I am very pleased to inform you that most articles and publications on tapirs are now available as electronic copies from our website (address to be announced soon – stay tuned). Currently we have over 326 articles! I think we may have the largest and most comprehensive tapir library that was ever compiled! Thank to all of you who send articles! I also want to acknowledge my graduate student Melissa Cameron at Towson University, who worked very hard on this library.

As you know, our library is only as good as the materials it contains. I have made an effort to include as much material as I could find, but I am also certain that I have missed some of your papers. I ask you to help us in this endeavour: please send me electronic (scanned, PDF) copies of any publication or theses on tapirs that you see missing in our Tapir Specialists Group Virtual Library (TSGVL). Send these please to: e-mail: hbeck@towson.edu

We also must make an effort to maintain the TSGVL up to date. This is the easiest way to ensure that we have a complete information account of any works on tapirs. Please send me copies of any new articles you publish or theses (other than in the TCN) about tapirs, or any discoveries of new articles you may find in your bibliographic searches.

It is my sincerest hope that the TSGVL will be a vital tool assisting research and conservation work on tapirs worldwide. Please note, articles published in magazines and journals, and theses, are the property of the publishing institutions. We are approaching the publishers to request permission to offer download of these articles from our site. We will post terms of use on the website, as we must follow the copyright and ownership agreements reached. When we do so, please make sure you read, understand, and agree to these terms. If you have any comments or suggestions to make the TSGVL more useful to you, please do not hesitate in contacting me.

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NEWS FROM THE FIELD

Rescuing Lucia – A Tapir for Sale on the Web

By Adrian Benedetti

“In the forests of Darién a baby female tapir of approximately 60-80 lbs. was captured. She is in good health. Those interested must provide transportation out of Darien. Animal is currently in the town of Boca del Tigre.

Price: 2,500”

Two weeks earlier, when I originally was notified about the case, the price was \$ 1,000. I had no idea tapirs were in such high demand when I first spoke with the middleman. We first talked when I was verifying if this whole “sale” was true. It wasn't hard to get his personal information since the man had posted his name address and cell phone number on the Internet. In the short conversation he informed me that the tapir was in a distant location and needed to be transported down the Chucunaque River. He said he first needed to contact his brother in law in Darién in order to see which day he could obtain a boat to travel down river. He would keep me posted.

I really couldn't get a read on the situation. Either these guys were incredibly stupid or extremely confident that no one was going to do anything. I mean, here they were providing all the necessary information for a conviction... on the world wide web! Now there are a couple of reasons why I was notified, instead of the national environmental authorities: I'm the director of the national nature park which has a tapir collection and the gentleman that notified me is a key advisor to the foundation in charge of running it. The second is because it was a national holiday weekend when the posting was made, hence all government agencies were closed. While passing as the manager of a rich man's private animal collection, I had no way knowing if these guys would realize I was lying or, for that matter, of knowing whether they really had a tapir. Many here in Panama mistake an owl for a Harpy Eagle, so you can imagine my level of skepticism and complete bewilderment.

While I waited to be contacted, I talked to the local authorities and some friends at the Houston Zoo about how to proceed. It was decided that I had to go

to Darién, since I had already made the initial contact. I would go along with the middleman, a vet (in order to insure the immediate inspection of the animal) and undercover personnel from Panama's National Environmental Service (ANAM). We would travel in an unmarked car and arrest the men once the animal was safely in our custody.

A week passed and I spoke to the middleman and he said it was on for the weekend. I called ANAM and relied this information. I called the middleman back to confirm. He told me it was off because the canoe was going to be used to transport agricultural products before the dry season came in and the water levels in rivers started to drop. I called ANAM and told them it was off.

At this point I was beginning to think they were on to me. Why on earth would you put \$ 2,500 on hold for crops? I thought, for sure, that would be the last I would hear from them. That was a Friday. On Tuesday of the next week I got a call saying it was on again for that Sunday.



Fig. 1. Rescued Lucia.

Come Friday morning I thought that everything was in place for Sunday. ANAM informed me that they had the car and an undercover official that would accompany me. I had the vet and about \$ 500 just in case. Friday evening I got a call saying the car had broken down and the official was nowhere to be found. Late Saturday morning an apprentice vet, an ex Noriega body guard, the middleman and myself were on our way to Darién in a rented car with the telephone number for the ANAM Darién office.

Since the confiscation I've been asked several times if these men knew that what they were doing was illegal. I know for sure the middleman was aware,

because he warned me several times that I would need permits to get the tapir out of Darién, since there are several check points along the one and only road. By road I'm referring to the Panamerican Highway that begins in Alaska stops in the Darién and begins again in Colombia and goes all the way down South America. These checkpoints are in place to check for the smuggling of contraband, drugs, animals, wood, diseases and people. I told him not to worry, it was all taken care of; meanwhile I had no clue what we were going to do.

We arrived in Metetí, Darién, in the late afternoon and the plan was for me to meet secretly with the local ANAM officials and plan out the next day's operation. After dinner the rest of the party settled down to watch T.V. I excused myself by saying I needed to call my boss. None of the public telephones worked and I had no cell phone reception so I just walked down to the station I had seen earlier when we drove through town. Once there, ANAM officials and I sat down to plan out the next morning. There were three players in this operation: ANAM, the local police, and us. The reason for needing the police was that ANAM did not have the training to carry out the arrest. They were going to leave at 5 am to make sure they were there before us. We would leave at 7 am, go straight to port, inspect the animal, and put her safely in the car which was the signal for the police to come out and make the arrests. Once arrested, the detainees would be transported to the ANAM station for processing and we would be escorted out of Darién in order to avoid any problems with the checkpoints.

I went back to the hotel a little nervous and sat down to watch TV with the rest of my traveling companions. The middleman never suspected a thing. They informed me the hotel had Direct TV. I asked if I could change the channel. There was a game I wanted to watch. I flipped a few channels and relaxed a little watching the Denver Broncos play the Buffalo Bills in the middle of Darién.

The next morning everything went just as planned. The ANAM personnel told me it was the first animal trafficking arrest made since the new law came into affect. The new law provided a basis for penalizing offenders, which includes jail time and fines. Before, they would only confiscate whatever the person was trafficking and let him go.

Lucia, so named in honor of the person that originally found the notice on the net, was a little malnourished and showed minor scrapes and scratches from all the moving around. She has now gained eight pounds and her medical tests came out perfect. She is now the sixth member of the tapir family at Summit Nature Park, Panama.

This is a perfect example of why it is so important to invest in creating good zoos in developing countries. In these countries, individuals and well organized NGO's can have a direct impact on what is going on.

These countries are both the battlegrounds and the classrooms where quality information needs to be exchanged between institutions, the public and policy makers. What was done for Lucia is a drop of water in the ocean compared to what could be achieved with generation after generation of proper monitoring and conservation actions. Parks like the Summit Nature Park, Panama, will provide a space and a will for that.

Adrian Benedetti

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NEWS IN BRIEF

Brian Bovyer Raises \$ 450 for Tapirs

By Gilia Angell

Brian Bovyer of Ohio, is one cool 14-year old. He contacted TSG out of the blue asking if we could share any printable materials because he was raising funds for tapir conservation! He explains his motivation and experience in creating tapir awareness: "Dr. Martin Luther King Jr. believed that it was critical for a person to have discovered something in life for which it was worth dying... I have found that something in a recent visit to Costa Rica with my family... There are many endangered species in our world. And one of them is the tapir."

Back home, after a lot of research on the tapir, he and his mother organized a "Save the Tapir Drive". By selling "LIVestrong" type bracelets at school and public places, the Bovyer family made \$ 450 for the Tapir Specialist Group. Brian's dad John made a check available for TSG at the Houston Zoo in May 2006.

A detailed report will be published in the next issue of *Tapir Conservation*.

Thank you, Brian! We are so grateful to have tapir advocates like you!

Gilia Angell

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CONTRIBUTED PAPERS

Status and Conservation of Baird's Tapir in Oaxaca, Mexico

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Abstract

Within the country, it is suspected that tapirs survive in some forested areas of the southeastern states (Campeche, Chiapas, Oaxaca, Quintana Roo, Veracruz and probably Tabasco). Nonetheless, the presence of these mammals has not been verified in most of the potential distribution areas, especially those without protection. This project aims to: (1) obtain field data to create a real tapir distribution map for the first time in Oaxaca, Mexico; (2) identify non-protected areas where tapir populations survive in the state; and (3) to assess the isolation of forest fragments large enough to shelter viable tapir populations. The fieldwork consisted of visits to potential tapir distribution areas identified by Mexico's Committee for Tapir Conservation and Recovery. Within twelve months, tapir presence was recorded by searching for verifiable evidence (skulls, feces and footprints), as well as through interviews with residents of communities near to potential distribution areas. The results obtained suggest the presence of three populations: Chimalapas Forest, Sierra Juárez and Oaxaca Coast. The presence of the species in La Tuza de Monroy, Municipio de Santiago Jamiltepec, Oaxaca, extends the actual registered distribution to 377.4 km NW of its known range. A current distribution map was generated. Connectivity among forest patches with tapir presence was assessed.

Key words:

Baird's Tapir, Conservation, GIS, Hunting, Mexico.

Introducción

Desde su llegada a América, las sociedades humanas han utilizado extensivamente los ungulados y muchas otras especies de fauna silvestre como fuentes de alimento, vestimenta, medicinas, herramientas, objetos rituales, símbolos, trofeos y compañía (Ojasti y Dallmeier, 2000). Muchos de los residentes contemporáneos en el Neotrópico aún consideran a la cacería como una actividad importante que les provee de alimento e ingresos económicos (Robinson y Bennett, 2000; Shaw, 1991). Por lo que durante siglos, los ungulados han sido especies preferidas por los cazadores Neotropicales, principalmente debido a su rendimiento de carne y pieles valiosas tanto para el consumo local como para el comercio (Bodmer *et al.*, 1996). Desafortunadamente, las prácticas de cacería no sustentables han causado la sobreexplotación de numerosas poblaciones de estos mamíferos (Bennett y Robinson, 2000).

La sobreexplotación, sin embargo, no es la única amenaza para las poblaciones de ungulados en la actualidad. Las demandas de recursos naturales de poblaciones humanas crecen rápidamente en Latinoamérica, lo que resulta en elevadas tasas de deforestación y fragmentación de los bosques de la región (Laurance y Bierregaard, 1997). La destrucción de estos ecosistemas ha limitado severamente la distribución y abundancia de las poblaciones de ungulados y otros animales silvestres, además de haber provocado cuantiosas pérdidas de fuentes potencialmente renovables de alimento, madera y muchos otros recursos valiosos para los pobladores locales (Cuarón, 2000).

Tabla 1. Bases de datos y referencias bibliográficas consultadas para la elaboración del mapa de distribución histórico y actual del tapir centroamericano (*Tapirus bairdii*) en Oaxaca.

ACRÓNIMO	NOMBRE
ECO-SC-M.	Colección Mastozoológica de El Colegio de la Frontera Sur. San Cristóbal de las Casas. Chiapas.
CNMA	Colección Mastozoológica del Instituto de Biología de la Universidad Nacional Autónoma de México.
OAXMA	Colección Mastozoológica del CIIDIR Oaxaca.
MZFC	Museo de Zoología Alfonso L. Herrera de la Facultad de Ciencias de la Universidad Nacional Autónoma de México.
CONABIO	Arita, H. T. y G. Rodríguez. 2004. Patrones geográficos de diversidad de los mamíferos terrestres de América del Norte. Instituto de Ecología, UNAM, Bases de Datos SNIB-CONABIO proyecto QO68. México, D.F.
	University of Michigan, Museum of Zoology
	University of Kansas, Biodiversity Research Center
	Royal Ontario Museum
	Michigan State University Museum
	Museum of Natural Science, Louisiana State University, Baton Rouge
	Field Museum of Natural History, Chicago, Illinois
	March, I. J. 1994. Situación actual del tapir en México. CIES, Centro de Investigaciones Ecológicas del Sureste, Serie Monográfica N°1, San Cristóbal de Las Casas, Chiapas, México. 41 pp.
	Goodwin, G.G. 1969. Mammals from the State of Oaxaca, Mexico, in the American Museum of Natural History. Bulletin of the American Museum of Natural History. Vol. 141: 1 New York. 269 pp.
	Halls, L.K. (ed). 1984. White-tailed deer: Ecology and management. Stackpole Books Harrisburg, PA. 870 pp.
	Webb, R.G. y R. H. Baker. 1969. Vertebrados terrestres del suroeste de Oaxaca. Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología 40(1): 139 - 152.
	Lira, T. I., y E. Naranjo, P. 2005. Ampliación del área de distribución de <i>Tapirus bairdii</i> Gill 1865 (Perissodactyla: Tapiridae) en Oaxaca, México. <i>Acta Zool. Mex.(n.s.)</i> 21(1):107 - 110.

El tapir centroamericano (*Tapirus bairdii*) se considera, de acuerdo a la Unión Internacional para la Conservación de la Naturaleza (UICN) y el Grupo de Especialistas en Tapires (TSG), en peligro de extinción en todos los países de Mesoamérica. Esta especie tenía una distribución continua, desde el sureste de México hasta el noroeste de Colombia, extendiéndose desde los bosques tropicales lluviosos y humedales costeros hasta los bosques mesófilos de montaña y páramos sobre los 3,000 msnm. Sin embargo, los altos índices de fragmentación y pérdida de hábitat, y la cacería de subsistencia han restringido la distribución actual del tapir a las áreas naturales protegidas donde aun subsiste, y a aquellas áreas alejadas de los asentamientos humanos y sin alguna protección legal.

Dado el rápido crecimiento de la población humana en el sureste de México y Mesoamérica, es esencial mantener grandes extensiones de bosques y

selvas para asegurar la sobrevivencia de poblaciones viables de esta especie. Así mismo, también es muy importante identificar aquellos grandes fragmentos de bosque donde el tapir centroamericano sigue habitando para promover la conservación de estos hábitats, asegurar la regulación de la cacería, y realizar otras prácticas de conservación en las comunidades humanas más cercanas.

En México, se sospecha que el tapir centroamericano sobrevive en algunas áreas boscosas del sureste (Campeche, Chiapas, Oaxaca, Quintana Roo y Veracruz).

No obstante, la presencia de este mamífero no ha sido verificada en la mayoría de los estados en áreas de distribución potencial, especialmente en aquellos sitios que no

cuentan con figuras de protección (Álvarez del Toro, 1991; Lira *et al.*, 2004; Lira *et al.*, 2005; March, 1994; Naranjo y Cruz, 1998; Naranjo y Vaughan, 2000).

Por ende, los objetivos de este estudio en el estado de Oaxaca son: 1) Identificar las áreas protegidas y no protegidas, o que no se encuentran dentro del sistema de Áreas Naturales Protegidas (ANP) de la Comisión Nacional de Áreas Naturales Protegidas de la Secretaría del Medio Ambiente y Recursos Naturales (CONANP / SEMARNAT), y donde las poblaciones del tapir sobreviven; 2) Determinar el grado de aislamiento de los grandes fragmentos de bosque que albergan poblaciones viables del tapir centroamericano; 3) Identificar las principales amenazas hacia estas poblaciones; y 4) Proponer estrategias de acción prioritarias que contribuyan a la conservación, recuperación y uso sustentable de las poblaciones del tapir centroamericano a nivel estatal.

Cobertura

Para la delimitación de este estudio se utilizó la regionalización propuesta por la Comisión Nacional para el Conocimiento y uso de la Biodiversidad (CONABIO, 2000), donde se identificó sitios con un alto valor de biodiversidad en ambientes terrestres del Estado de Oaxaca utilizando criterios biológicos, de amenaza para el mantenimiento de la biodiversidad y de oportunidad para su conservación. Como resultado se seleccionaron siete regiones terrestres prioritarias (RTP) dentro del estado, delimitadas espacialmente en función de su correspondencia con rasgos topográficos, eco-regiones, cuencas hidrológicas y áreas naturales protegidas donde posiblemente puedan existir poblaciones viables del tapir centroamericano debido a la interconexión con zonas de existencia verificada (Figura 1).

Método

La información de este estudio provino de tres fuentes: a) Revisión de trabajos publicados y la consulta a bases de datos de colecciones biológicas naciona-

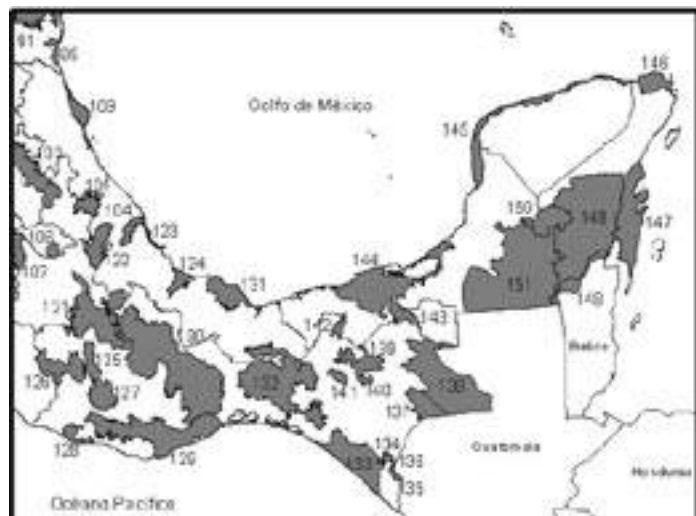


Figura 1. Regiones terrestres prioritarias (RTP) consideradas para este estudio en el Estado de Oaxaca, México. Tomado de: Arriaga, L., J.M. Espinoza, C. Aguilar, E. Martínez, L. Gómez y E. Loa (coordinadores). 2000. Regiones terrestres prioritarias de México. Escala de trabajo 1:1 000 000. Comisión Nacional para el Conocimiento y uso de la Biodiversidad. México. Los números corresponden a las siguientes regiones: RTP 125: Cerros Negro – Yucaño; RTP 126: Sierras Triqui – Mixteca; RTP 127: El Tlacuache; RTP 128: Bajo Río Verde – Chacahua; RTP 129: Sierra Sur y Costa de Oaxaca; RTP 130: Sierras del Norte de Oaxaca – Mixe; RTP 132: Selva Zoque (“Los Chimalapas”).

les o extranjeras (Tabla 1); b) Visitas a las áreas de distribución potencial del tapir centroamericano en Oaxaca, identificadas previamente por el Subcomité Técnico Consultivo Nacional para la Conservación y Recuperación del Tapir en México, y principalmente en aquellos sitios donde existen reportes locales de la presencia de la especie por pobladores, buscando evidencias confiables (cráneos, heces y huellas) sobre su presencia/ausencia; y c) Entrevistas a los residentes de comunidades próximas a las áreas de distribución potencial.

El estudio se realizó en 12 meses de trabajo en campo, repartidos entre agosto del 2003 y julio del 2004. Para la realización de las entrevistas se aplicaron dos modelos: a) entrevistas semi-estructuradas (Furze *et al.*, 1996) y b) entrevistas cortas sobre avistamientos de tapires y conversaciones informales. Un mapa de la distribución actual e histórica del tapir en Oaxaca fue generado geo-referenciando, con un Sistema de Información Geográfica en el Laboratorio de Análisis Geográfico de la UMAR, todos los registros obtenidos. Se observó asimismo la conectividad entre fragmentos de bosque.

Resultados y Discusión

Se compilaron y generaron un total de 36 registros de distribución para la especie en Oaxaca. Once registros se obtuvieron de bases de datos de colecciones biológicas nacionales y extranjeras, cuatro se encontraron en publicaciones con referencia de localidades específicas, y 21 en registros obtenidos en las visitas a las siete regiones terrestres prioritarias (RTP) enmarcadas por la CONABIO en el Estado de Oaxaca (Tabla 2).

Aunque los registros históricos sobre la ocurrencia del tapir en Oaxaca se restringen al sureste del Estado, en las localidades de Tapanatepec, Zanatepec y La Ventosa (Goodwin, 1969; Leopold, 1965; March, 1994; Webb and Baker, 1969), los resultados de la consulta a bases de datos, visitas a campo, entrevistas, colecta de organismos y sus rastros, confirman que la especie se distribuyó históricamente a lo largo de la Sierra Madre del Sur, Planicie Costera del Pacífico, Sierra Madre del Sur de Oaxaca y Chiapas (Región de los Chimalapas), Sierra Madre de Oaxaca y Planicie Costera del Golfo (Papaloapan) (Tabla 2). No obstante, en los últimos 30 años, la modificación o destrucción de hábitats ocasionada por los incendios forestales ha sido una de las principales causas de pérdida de áreas extensas de bosques y selvas en las distintas regiones de Oaxaca, principalmente en el Istmo de Tehuantepec, la Planicie Costera del Pacífico, la Sierra Madre de Oaxaca y la Sierra Madre del Sur. El cambio de uso de suelo para actividades agropecuarias, el aprovechamiento forestal

Tabla 2. Listado de registros de distribución, presencia, fuentes de información, coordenadas, tipo de vegetación (según el sistema de clasificación de Gonzáles, 2004) y principales amenazas para el tapir centroamericano (*Tapirus bairdii*) en Oaxaca.

LOCALIDAD	PRESENCIA	TIPO DE REGISTRO ^a	COORDENADAS UTM (Datum: WGS84)	TIPO DE VEGETACIÓN ^b	IMPACTO HUMANO ^c
Tapanatepec	Histórica	A1, A3	357596E, 809961N	B1	C1, C2
Zanatepec	Histórica	A1, A3	355890E, 1821037N	B1	C1, C2
La Ventosa	Histórica	A1, A3	292000E, 1830000N	B1	C1, C2
P.N. Lag. de Chacahua	Histórica	A2, A3	637562E, 1768333N	B2, B3	C1, C2
Putla de Guerrero	Histórica	A2, A3	613591E, 1883749N	B2, B4	C1, C2
La Reforma	Histórica	A2, A3	716061E, 1768217N	B2	C1, C2
Cerro Cimarrón	Histórica	A2, A3	802169E, 1754260N	B2	C1, C2
Cerro El Sombrero	Histórica	A2, A3	651826E, 1778518N	B2	C1, C2
Cerro San Juan	Histórica	A2, A3	667060E, 1783102N	B2	C1, C2
El Hule	Histórica	A2, A3	801541E, 1752563N	B1	C1, C2
Arroyo Xuchi	Histórica	A2, A3	797568E, 1753290N	B1	C1, C2
Xuchitl "El Alto"	Histórica	A2, A3	796684E, 1755161N	B1	C1, C2
La Fortaleza (1)	Actual	A2, A3, A4, A5, A6, A7	372963E, 1895425N	B2	C1, C2, C3
La Fortaleza (2)	Actual	A2, A3, A4, A5, A6, A7	366034E, 1893830N	B2	C1, C2, C3
El Espinazo del Diablo	Actual	A2, A3, A4	379457E, 1901315N	B2	C1, C2
Nuevo Paraíso	Actual	A2, A3, A4	355831E, 1897880N	B2	C1, C2
La Gringa	Actual	A2, A3, A4	380101E, 1890757N	B2	C1, C2
La Esmeralda	Actual	A2, A3, A4	309782E, 1898642N	B2	C1, C2
Santa Ma. Chimalapa	Actual	A2, A3, A4	320683E, 1869908N	B2	C1, C2
Ixtlán de Juárez	Actual	A2, A3, A4	146299E, 1939446N	B2	C1, C2
La Tuza de Monroy	Actual	A2, A3, A4	624679E, 1772677N	B2, B3	C1, C2
Veinte Cerros	Actual	A2, A3, A4	814913E, 1952030N	B2, B4	C1, C2

^a A1 = bases de datos; A2 = visita de campo; A3 = entrevistas; A4 = huellas; A5 = cráneo; A6 = excretas; A7 = observación directa

^b B1 = Selva Baja Caducifolia; B2 = Selva Mediana Subperennifolia o Perennifolia; B3 = Manglares; B4 = Bosque Mesófilo de Montaña

^c C1 = cacería; C2 = destrucción del hábitat; C3 = introducción de enfermedades

clandestino y el narcotráfico son otras causas que han mermado la cobertura forestal del Estado y por ende transformado o eliminado la mayor parte del hábitat para el tapir centroamericano en estas regiones (Figura 2) (Arriaga *et al.*, 2000; Caballero, 2000; Gobierno del Estado de Oaxaca, 1990; Instituto Estatal de Ecología de Oaxaca, 2003; González *et al.*, 2004; Ortiz *et al.*, 2004).

Los resultados obtenidos confirman la presencia de cuatro poblaciones remanentes de esta especie en el Estado de Oaxaca, mismas que no se encuentran dentro del sistema de Áreas Naturales Protegidas (ANP) de la Comisión Nacional de Áreas Naturales Protegidas de la Secretaría del Medio Ambiente y Recursos Naturales (CONANP / SEMARNAT), pero si se encuentran en localidades que son consideradas Regiones Terrestres Prioritarias por la Comisión Nacional para

el Conocimiento y uso de la Biodiversidad (CONABIO), debido al alto valor de conservación que presentan (Arriaga *et al.*, 2000). La primera población se encuentra localizada en la Tuza de Monroy, Municipio de Santiago Jamiltepec (16° 03' N y 97° 51' O), en la región Fisiográfica de la Planicie Costera del Pacífico. La presencia del tapir se confirmó mediante la observación de huellas y echaderos a 3.7 km en línea recta de la localidad de estudio, cercano a la Laguna de Miniyua. El tipo de vegetación predominante es el manglar, la Selva Baja Caducifolia y Selva Mediana Sub-caducifolia (González, 2004). El área cuenta con una superficie de 203 km², por lo que se infiere que existe una población de al menos 40 tapires.

La segunda población se encuentra en la región de Ixtlán, Municipio de Ixtlán de Juárez (17° 20' N y 96° 29' O) en la Sierra Madre de Oaxaca. La presencia

de la especie se confirmó mediante entrevistas a los residentes de las comunidades próximas. El tipo de vegetación predominante es el Bosque Mesófilo de Montaña (González, 2004) y el área abarca una superficie de 237 Km² en buen estado de conservación; se infiere que posee una población de aproximadamente 50 tapires.

La tercera población se encuentra localizada en la Cordillera de Veinte Cerros, localizada en el Municipio de Santiago Jocotepec (17° 35' N y 95° 53' O) en la Planicie Costera del Golfo (Papaloapan). La presencia de la especie se confirmó con presencia de huellas, excretas y con entrevistas a las comunidades aledañas. Los tipos de vegetación predominantes son la Selva Alta Perennifolia y Selva Mediana Sub-perennifolia (González, 2004). Esta cordillera cuenta con una superficie boscosa de 522 km² en buen estado de conservación, por lo que se infiere que en ella habitan aproximadamente 100 tapires.

La última población esta localizada en la región de los Chimalapas, Municipios de Santa María y San Miguel Chimalapa (16° 00' N y 93° 21' O), en la Sierra Madre del Sur de Oaxaca y Chiapas. La presencia de la especie se confirmó con la observación directa de ejemplares, el registro de sus huellas y excretas, así como con la colecta de cinco cráneos de tapires adultos, mismos que fueron depositados en colecciones biológicas regionales, estatales y nacionales. En la zona están presentes la Selva Alta Perennifolia, Selva Mediana Sub-perennifolia, Bosques de Pino, Bosques de Encino, Bosques Mesófilos de Montaña, Selva Baja Caducifolia y Selva Mediana Sub-caducifolia (González, 2004). Considerando que en esta localidad cuanta con una superficie de 4,629 km² de hábitats en buen estado de conservación, se infiere que existe una población de más de 900 tapires. Por lo anterior, se calcula para todo el Estado de Oaxaca una población de al menos 1,100 animales (Tabla 3).

Se ha propuesto un número mínimo de 50 individuos reproductivos para que una población no presente problemas de pérdida de diversidad genética a corto plazo y de 500 individuos para asegurar la conservación a largo plazo (Aranda, 1996; Soulé, 1980). Estos números deben ser tomados con reservas. No obstante, debe ser preocupante el hecho de que una



Figura 2. Distribución histórica y actual del tapir centroamericano (*Tapirus bairdii*) en Oaxaca, considerando registros actuales, encuestas y organismos depositados en colecciones nacionales e internacionales, así como tipos de vegetación presentes de acuerdo al Inventario Nacional Forestal 2000.

población sea menor a 50 individuos. Posiblemente la situación más crítica para el tapir se presenta en la Tuza de Monroy. Las poblaciones de tapires de esta localidad, además de reducidas, se encuentran aisladas. La Cordillera de Veinte Cerros es un área pequeña, pero que aún conserva continuidad con la Sierra Madre de Oaxaca y por ende con la población de Ixtán. Por último, la única localidad en Oaxaca, que por su extensión puede mantener una población numerosa de tapires, es la Región de Los Chimalapas. La variedad de los sistemas naturales, la escasa perturbación y aislamiento de la mayor parte de ellos y el hecho de que el área ha funcionado, debido a peculiaridades climáticas, ecológicas y de historia geológica, como refugio de organismos del trópico húmedo por miles de años, podría garantizar la viabilidad poblacional del tapir en esta región, por lo que es posible considerar a esta población como una de las más importantes para la conservación no sólo en Oaxaca y México, sino a nivel Mesoamericano (Caballero, 2000; Lira *et al.*, 2005; March, 1994; Matola *et al.*, 1997; Naranjo, 2001; Torres Colín, 2004).

En líneas generales, las amenazas más importantes para la permanencia de los tapires en Oaxaca son la pérdida o deterioro del hábitat, la cacería de subsistencia, la competencia con especies introducidas como el ganado, la situación del orden público en el

Tabla 3. Estimados del número de tapires centroamericanos (*Tapirus bairdii*) en Oaxaca a través de datos de campo para tres valores de densidad poblacional, localidad, tipo de hábitat y conectividad de las poblaciones, y prioridad de asegurar viabilidad poblacional (con ≥ 50 individuos adultos).

LOCALIDAD	REGIÓN	SUPERFICIE (Km ²)	TIPOS DE HÁBITAT	ABUNDANCIA BASADA EN ESTIMACIONES DE DENSIDAD*			CONECTIVIDAD	PRIORIDAD DE VIABILIDAD POBLACIONAL
				BAJA (0.07 ind./km ²)	INTERMEDIA (0.2 ind./km ²)	ALTA (0.3 ind./km ²)		
La Tuza de Monroy (Municipio Jamiltepec)	Costa	203	Selva baja y mediana caducifolia	14.21	40.6	60.9	Aislada	No prioritaria
Ixtlan (Municipio Ixtlan de Juárez)	Sierra Norte	237	Bosque mesófilo de montaña	16.59	47.4	71.1	Sierra Norte, Cordillera Veinte Cerros	No prioritaria
Veinte Cerros (Municipio Santiago Jocotepec)	Papaloapan	522	Selva mediana subperennifolia	36.54	104.4	156.6	Sierra Norte	Prioritaria
Los Chimalapas (Municipio Santa María y San Miguel Chimalapa)	Istmo	4629	Selva alta perennifolia, Bosque mesófilo de montaña, Selva baja y mediana caducifolia	324.03	925.8	1,388.7	Los Uxpanapa, Reserva de la Biosfera Selva El Ocote, Sierra Madre de Chiapas	Altamente prioritaria para la conservación de tapires en México y Mesoamérica
Total de Tapires en Oaxaca				391.37	1,118.4	1,677.3		

*Densidad baja basada en: Lira, I. P., E. Naranjo, A.G. Güiris, A. E. Cruz, 2004; Ecología del *Tapirus bairdii* (Perissodactyla: Tapiridae) en La Reserva de La Biosfera "El Triunfo" (Polígono I), Chiapas, México; Acta Zoológica Mexicana (N.S.) 20(1): 1-21. Densidad media basada en: Naranjo, E.J. y E. Cruz, 1998; Ecología del tapir en la Reserva de la Biosfera La Sepultura, Chiapas; Acta Zoológica Mexicana 73:111-125. Densidad alta basada en: Naranjo, E.J. and R.E. Bodmer, 2002; Population ecology and conservation of Baird's tapir (*Tapirus bairdii*) in the Lacandon Forest, Mexico; Tapir Conservation Newsletter 11:25-33.

Estado y el desarrollo de infraestructura. La extinción local del tapir en el Estado de Oaxaca por presión de cacería posiblemente tiene efectos determinantes en la composición y estructura de la vegetación (Dirzo y Miranda, 1991). Por ello, la conservación de esta y otras muchas especies es fundamental para el mantenimiento integral de los procesos ecológicos en las áreas de hábitat original. Algunas de las estrategias de acción prioritarias que contribuyan a la conservación, recuperación y uso sustentable de las poblaciones del tapir centroamericano en el territorio Estatal son:

1. Desarrollar estudios locales orientados a calcular índices de abundancia relativa, densidades, demografía (proporción de sexos y edades) y evaluar la situación actual del hábitat potencial para el tapir centroamericano en las cuatro poblaciones identificadas.
2. Efectuar estudios sobre la biología básica y ecología del tapir en estado silvestre en las cuatro poblaciones identificadas.
3. Caracterizar la cacería en las áreas alrededor de estas cuatro poblaciones, e implementar programas de producción animal alternativos.
4. Diseñar e implementar corredores biológicos entre hábitats que garanticen flujos y eviten la extinción

de las poblaciones aisladas.

5. Buscar nuevos registros y confirmar reportes de presencia de *Tapirus bairdii* dentro del Estado.
6. Implementar una campaña de difusión en los medios de comunicación a nivel rural y urbano que cree concientización sobre la necesidad de conservar a esta especie en Oaxaca.
7. Reforzar la legislación existente en las áreas prioritarias para la conservación donde se ha verificado la presencia del tapir.
8. Reforzar la concientización, vigilancia y control de los cazadores de subsistencia que inciden en las áreas en donde se halla la especie.

Del éxito o fracaso que se logre en los esfuerzos de conservación de las cuatro poblaciones remanentes en el Estado de Oaxaca, dependerá que en los próximos años el tapir sea o no otra especie extinta del territorio del Estado. Para ello es urgente que los organismos gubernamentales, los centros de investigación, las instituciones académicas y las organizaciones conservacionistas diseñen e implementen estrategias coordinadas de investigación, conservación y planes de acción, bajo una estrecha y constante concertación con los pobladores y las agencias de desarrollo.

Agradecimientos

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Ethnozooology of the Amazonian Tapir (*Tapirus terrestris* Linnaeus 1758) in the Sarayaku Community, Ecuador

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„At the beginning of the world there were no wars, but once the peccaries killed a tapir. There was in the forest a very powerful ‘yachak’ that was a tapir and it revenged the death of his brother, then there were wars in the world and nothing went back to be the same.”

Shipibo-Conibo narrative Ucayali, Peruvian Amazon (Harbes Silvano, pers. comm.)

Abstract

The present study was carried out in Sarayaku, a Kichwa indigenous community of the Pastaza Indigenous Peoples' Organization (OPIP) in the Ecuadorian Amazon, Province of Pastaza, Ecuador. Twenty one families were interviewed by means of structured surveys about general knowledge of Amazonian Tapir (*Tapirus terrestris*). Surveys were directed toward hunters' families and com-

munitarian park-rangers. Tapir represented 6.34% of the annual diet of the 21 surveyed families and occupied sixth place among the most hunted species. Preferred sites for hunting were: salt licks, *Mauritia flexuosa* swamps, chacras (small gardens), hills, plains and river edges. Interviewed people described hunting techniques, hunting histories and mythological knowledge about the species. Six families attributed medicinal uses to the hoof of the tapir. Another six indicated that tea made of grated hooves fights cardiac afflictions, epilepsy and rheumatism. The nine remaining families did not attribute any medicinal use to the species. Additionally, we consider the experience of the "Tapir Conservation Project" held in the community through the establishment of communitarian reserves as an alternative for food security and management of the biodiversity. This experience, combined with the results of this study, give us an idea of the ample knowledge of Kichwa indigenous peoples on the biodiversity of our house, Pachamama.

Introduction

Sachawagra (“cow of the jungle” in Kichwa language), danta or tapir (*Tapirus terrestris* Linnaeus 1758) traditionally represents an important source of animal protein for indigenous communities of the Ecuadorian Amazon region (Tapia, 1999). Tapirs are mammals with a low reproductive rate (Bodmer et al., 1997) and thus very susceptible to negative impacts. The decline that the species faces today is largely the responsibility of the big industries (oil and timber) (Schultz, 1998), as well as governmental laws that in the name of development stimulated unsustainable depredation of our indigenous territory in the 70-s and 80-s (Agrarian Reform and Colonization Law of 1964). In this context, we wanted to know how the human being and the wildlife species related in a same environment. That is, we wanted to know the uses and values for tapirs in the Kichwa indigenous tradition and how it relates to its use. This study would help us understand better what we stand to lose, economically and culturally, if the species disappears.

Indigenous beliefs have rooted in their Cosmo vision the idea that all beings own a spirit (supay) that makes them belong to this world. All the animals are, therefore, important to keep the equilibrium of life. Amazonian indigenous nationalities tell many legends about the genesis of the world; in these narrations, the participation of all beings alive is defined. The tapir, the largest terrestrial mammal of the Neotropics, is said to own a powerful spirit, and therefore a strong symbolic value. Tapir populations are seen like “people” with their own social organization and with rules for relations with other beings of nature (Sarmiento, 2004).

Despite these values, it must be understood that increased dependency to external factors introduced in the communities by the practice of extractive process, like oil and timber industries, stimulate the deterioration of the natural resources in name of development. In addition, organizational weakness of some communities has made these problems more acute. The increase of hunting with commercial aims is undeniable, even in remote communities. Commercialization of wildlife has been stimulated by the abovementioned factors. In the Amazonian departments of the Peru, illegal sale of tapir parts has been registered. Ninety eight percent among 120 interviews reported the use of the snout to cure diseases such as cardiac problems, epilepsy, asthma, osteoporosis, etc. (Figueroa, 2004). Additionally use as pet has been described in some communities of southeast Peru (Figueroa, 2004).

In the present study, we tried to understand the pressure exerted by subsistence hunting, based on the multiple factors that determine the reality of Amazonian towns. In other words, we wanted to inter-

pret the uses of tapirs in the appropriate spiritual and cultural context, understanding the intimate relation between the human being and the forest. The power of histories, the vitality of the mythologies and the prescience of tradition of our people are aspects that must be considered because they represent coherent explanations to the phenomena that determine the life of man in the forest.

Materials & Methods

We surveyed 21 families of the Sayaraku Kichwa indigenous community of the Ecuadorian Amazon, by means of structured interviews. The surveys were directed mainly to hunters’ families and communitarian park-rangers. Surveys were made through visits to local families in coincidence with New Year eve festivities.

Some of the questions asked include: What are the most hunted species in the community? Have you or your relatives hunted tapirs? Where is it easier to find tapirs (salt licks, palm swamps, river edges, etc)? How many individuals do you hunt per year? How many tapir species or varieties do you know? What functions does the tapir perform in the rainforest? Do you know any medicinal use of tapirs? Do you consider the tapir as a sacred/symbolic animal? Have you tamed tapirs and what do you think about its management in captivity?

Results & Discussion

In at least 62 countries, hunting contributes approximately with 20% of animal protein in the diet of local people (Stearman & Redford, 1995). Results from this study indicate that the tapir represented 6.34% of the annual diet of the 21 surveyed families and occupied the sixth place between the more hunted species after the lumucuchi (*Tayassu tajacu*), lumucha (*Paca Agouti*), caruntzi (*Penelope purpuranssen*), taruga (*Mazama americana*) and chorongó (*Lagothrix lagothricha*). All hunted species are destined for meat consumption in the family (Belto Santi, pers. comm.). According to Siren (2004), the percentage in weight of tapir meat in the family diet in the same community is 8.7%. During a study in northeastern Ecuadorian Amazon, tapir contributed to local diets with a biomass of 595.80 kg (or 3.86% of all animal biomass consumed) in a period of nine months (Zapata, 2001). During communitarian festivities in central Ecuadorian Amazon, tapir represented 35.4% (200 kg) of total hunting (Freire, 1997).

In order of importance, the hunting sites preferred were: Salt licks (25% – in Kichwa: *kachis*), *Mauritia*

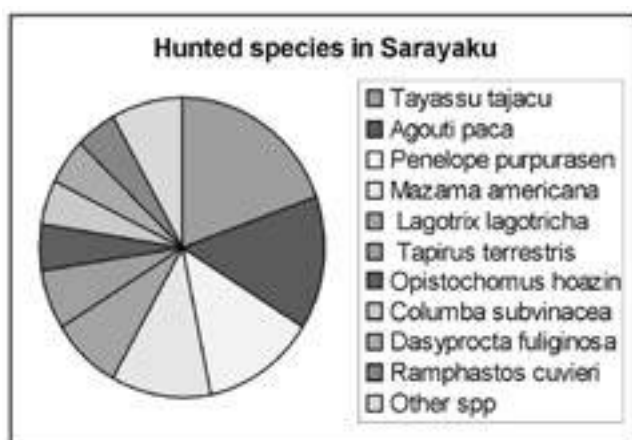


Figure 1. Frequency of hunted species in the diet of 21 families of the Sayaraku indigenous community, Ecuador.

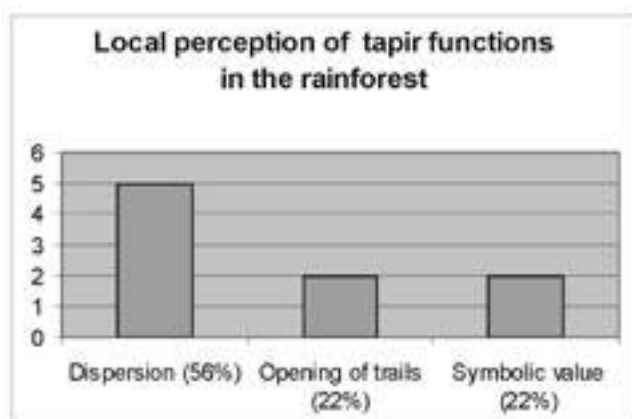


Figure 2. Local perception of tapir functions in the rainforest among 21 families of the Sayaraku indigenous community, Ecuador.

flexuosa swamps (20% – *muriti turu*), hills (20% – *urkus*), plains (20% – *pamba*), river edges (10% – *yaku*) and chacras (small gardens 5%).

Hunting techniques were described by interviews. Hunters usually wake up at 3:00 A.M, most of tapirs are hunted between 5:00 and 6:00 A.M while walking through their trails or at 12:00 noon, while resting. Many hunters wait in platforms located in strategic sites until tapirs appear and then kill them. Tapirs could also be found in river edges and lakes while hunters cruise in their canoes.

To the Sayaraku perceptions, two varieties of the same species of tapir exist. These varieties are: *Atun wagra* (great tapir) and *Shinlu wagra* or *Ichilla wagra* (small tapir). *Atun wagra* is blacker and its meat is clearer than *Shinlu wagra*. *Shinlu wagra* feeds mainly on the *Shinlu*, a 1 m tall shrub with green dark filamentous leaves.

People recognized the following functions of tapirs in the ecosystem: seed dispersal (5), opening of trails and footpaths that other animals and people use (2) and symbolic value (2). People usually attribute medicinal uses to tapir parts (Naveda, 2004). In this study, several families (6) attributed medicinal uses to the hoof of the tapir. They explained that the grated hoof is given to sick people in order to cure cardiac afflictions, epilepsy and rheumatism. People would also use this preparation against the “mal aire” (a weakness thought to be caused by spirits of forest), grated and offered with tobacco, or to help women become pregnant (grated and in drinks).

Five families had tamed tapir in the last years before the interview for domestic consumption. At the time of the interviews, one family owned a tamed animal and two animals had been released to a communitarian reserve as part of the Tapir Conservation Project held in the community. Many interviewees (14) said that semi-captivity is a good alternative for feeding security, while one other indicated that it is not a good choice due to the husbandry costs. At the present, an on going project exists for the conservation of tapirs, a natural resources and territory stewardship campaign impelled by communitarian leaders. Through the establishment of reserves and hunting prohibitions people have been involved in protection and ownership of resources, as a strategy against the unsound development plans promulgated by the State.

The oral tradition was enforced by Sayaraku elders during the Spanish conquest and colony as the main ideological weapon to oppose to the invading culture, and it became an institution that maintained alive our culture over the centuries since. Mythological aspects and dreams are very important in hunting activities of indigenous communities. During the preparatives before any hunting expedition, dream and mythological relates, chicha (traditional drink made of yucca, *Manihot sculenta*) and oral histories transmitted from one generation to another, conform a rich and variate cultural context that guides the hunter. The following are omens for good hunting among the Sayaraku: to dream being embraced by a girl, to kiss a girl or a relative, to dream constructing or hauling a canoe, to dream being near family or good friends, to dream being greeted by a fat person, or dream of weaving clothes or necklaces. Most families (15) consider tapirs as sacred animals and believe that they possess a spirit (*supay*), male or female, which whistles like the whinnying of a horse. This spirit lives in mountains (*urkus*) or salt licks (*kachis*). In these spiritual relates of the Sayaraku, wildlife species and their spirits – among them the tapir’s – play a pivotal role in the equilibrium of nature and are seen much like societies with their own organization, inter-related with all other beings of the forest – including humans.



Figure 3. A tapir inside a family abode at the Sayaraku indigenous community, Ecuador.

It is of paramount importance that the Sayaraku people develop sustainable management alternatives for its wildlife and forests, in response to unsustainable development options promoted by the government, to the economic interests of large extractive industries, and to the various proposed models that alienate indigenous peoples and threaten to annihilate the cultural traditions of native Amazon groups. Protecting biodiversity is, thus, not just about securing food sources and conserving ecosystems; it is also about a strategy for our people to maintain and preserve our cultural legacy.

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Figure 4. Workshop diagram promoting the conservation of wildlife at the Sayaraku indigenous community, Ecuador.

Manilkara zapota: A New Record of a Species Dispersed by Tapirs

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Abstract

Baird's tapir is the largest terrestrial Neotropical mammal in Central and South America. Tapirs are strict herbivores and they have been described as important seed dispersers and predators. However, it remains unclear to what extent the Baird's tapir can be consistently classified as a seed predator or disperser for a given tree species. *Manilkara zapota* (zapote) seeds were previously reported to be predated by tapirs because the seeds were thought to be too weak to withstand the tapir's molar mill. Here, we describe recent observations from the Greater Calakmul Region (Mexico) that show intact seeds and seedlings of zapote in tapir dung. The implications of these observations for zapote recruitment and distribution are the focus of ongoing research.

Introduction

The Baird's tapir (*Tapirus bairdii*) is the largest terrestrial Neotropical mammal in Central and South America to have escaped the Late Pleistocene extinctions between 22,000 to 10,000 years ago (Janzen, 1982; Brooks et al., 1997; Tobler, 2002). Populations of this species were formerly found from Veracruz in southeastern Mexico to the western cordillera of the Andes in Ecuador (Tobler, 2002). It is now considered extinct in El Salvador and endangered in all other parts of its range (Foerster and Vaughan, 2002; Norton and Ashley, 2004). It is probable that one of the biggest populations (between 1,000-4,800 individuals) is located in Mexico in the Lacandon Forest of Chiapas and in the Calakmul region in Campeche (Naranjo and Bodmer, 2002), however there are no proper population estimates (Brooks et al., 1997, Naranjo and Bodmer, 2002).

Tapirs are strict herbivores (Padilla and Dowler, 1994; Brooks et al., 1997; Olmos, 1997; Foerster and

Vaughan, 2002; Lira-Torres et al., 2004). They have been described as important seed dispersers and seed predators (Naranjo and Cruz, 1998; Foerster and Vaughan, 2002; Tobler, 2002; Fragoso et al., 2003). Seed predation is caused either by chewing or seed digestion (Brooks et al., 1997; Olmos, 1997); additional disperser induced mortality may occur by the deposition of seeds in unsuitable places (e.g. in water, Salas 1996). The vulnerability of the seeds ingested depends on the hardness and thickness of their coat, their size, and the time spent in the digestive tract (Brooks et al., 1997).

Tapirs have been defined as Pleistocene relicts and are obvious candidates for the dispersal of large seeds once dispersed by the mega fauna now extinct (Janzen, 1982). Janzen and Martin (1982) suggested that, during the Pleistocene, extant mega fauna of Central America maintained unique biological relationships with the plants they ingested. This unique ecological relationship between large mammals and plants has been supported by field observations in Africa and Asia (Chapman et al., 1992; Dinerstein and Wemmer, 1988). However, the general validity of this observation appears controversial for some species such as the Baird's tapir, and it remains unclear to what extent this species can be consistently classified as a seed predator or disperser for any given tree species. For example, Janzen (1981) reported that 100% of carao seeds (*Cassia emarginata*) were killed during the ingestion/digestion process despite the hardness of their coats, whereas Williams (1984) found live carao seeds in dung piles.

The zapote, chicle, chicozapote, or zapotillo, as *Manilkara zapota* (L.) Royen (Sapotaceae) is commonly known (Morton, 1987), is an important component of the tropical and subtropical vegetation of Mexico (Cruz-Rodriguez and Lopez-Mata, 2004). It is found in the Pacific and gulf coasts of Mexico and especially in the Yucatan Peninsula, as well as in Guatemala, Northern Belize and the Atlantic coastal forest of Nicaragua (Monton, 1987). The large, sweet, indehis-

cent fruits of *Manilkara zapota* seem to have evolved to enhance seed dispersal by large mammals. However, precise field observations in Costa Rica suggest that zapote seeds are too large and weak to withstand the molar mill of a tapir (Janzen, 1982; Williams, 1984). Naranjo and Cruz (1998) found evidence from faecal analysis of species from the same genus in the diet of Baird's tapir, but it is not known whether this observation referred to intact and viable seeds. Here we report the results of recent observations of intact seeds and seedlings of *Manilkara zapota* in the dung of Baird's tapir.

Study Site and Species

Our work was carried out in the Greater Calakmul Region (19°15' to 17°50'N and 90°20' to 89°00'W) that includes the Municipality of Calakmul in the southern state of Campeche, the Calakmul Biosphere Reserve and the buffer and corridor areas around it (Galindo-Leal et al., 2000). The Calakmul Reserve is the second largest protected area, and the largest protected tropical forest in Mexico (CONABIO, 1998).

The region is a mosaic of different kinds of tropical forests, from low-deciduous forest in the north, to tall-evergreen forest in the southeastern part (Martínez et al., 2002). More than 1,600 plant species have been found in Calakmul, and this region contains more than 80% of the plant species in the Yucatan Peninsula (SEMARNAP, 2000).

Manilkara zapota is a slow-growing, large tropical tree that can reach 45 m in height. Its fruits vary from 5-10 cm in width and, when mature, are soft and juicy. Although some fruits are seedless, normally there are from 3 to 12 seeds per drupe (Morton, 1987; Heaton et al., 1999). The seeds are brown or black, hard, glossy, long-oval, flat, usually with a curved hook on one margin and an elongate white scar (Morton, 1987; Heaton, et al., 1999). Seeds range from 16-23 mm long, 8-16 mm wide and of 0.3 g wet mass (Morton, 1987; Cruz-Rodriguez and Lopez-Mata, 2004).

There are 94 species of mammals reported in this reserve that includes the last remaining natural areas for several species with large habitat requirements such as tapir (*Tapirus bairdii*), white-lipped peccary (*Tayassu peccari*), jaguar (*Panthera onca*) and king vulture (*Sarcorampus papa*), among others (SEMARNAT, 2000).

Tapir populations are declining due to habitat destruction and hunting (Brooks et al., 1997). The fragmentation and isolation of tapir populations increases their risk of extinction due to demographic, genetic, and environmental stochasticity (Norton and Ashley, 2004). Baird's tapir have been observed to move over 20 km a day in Costa Rica where food and water availability are important factors in habitat selection

(Brooks et al., 1997, Foerster and Vaughan, 2002, Naranjo and Bodmer, 2002). This species is catalogued as "vulnerable" in CITES Appendix I (Tobler, 2002) and are listed as endangered by Mexican law (Naranjo, 1995, SEMARNAP, 2000). Very little is known on the tapir populations in the Greater Calakmul Region and there are no formal previous studies in this region.

Methods

In July 2005, we visited several waterholes (locally known as *aguadas*) outside and inside the Calakmul Biosphere Reserve. Dry waterholes and non-flooding areas were also visited. The sites outside of the reserve were located within the communal lands of Nuevo Becal and Narciso Mendoza. We were accompanied by local guides who are both skilled subsistence hunters and *chicle* gum harvesters (*chicle* gum is the latex of *Manilkara zapota*). Our guides were thus knowledgeable about local *aguadas*, as they hunt and camp nearby during *chicle* extraction.

Tapir dung samples were collected near waterholes. We focused on these areas as latrines were found around flooded or potentially flooded areas in other studies (Naranjo, 1995; Naranjo and Cruz, 1998; Lira-Torres, 2004). Any sample found while searching for the waterholes was also collected. A sample consisted of all the boluses found within a single dung pile. Care was taken to avoid any soil and litter material while collecting the sample.

Each sample was sorted and complete zapote seeds and seedlings were collected and counted. Zapote seeds were previously identified directly from trees and most seedlings were found still attached to the seed coat (Figure 1). Field notes and photographs were used to document seedlings that germinated directly from seeds within the faeces.



Figure 1. Germinated zapote seeds in a tapir dung bolus.

Results

Tapir latrines were found around waterholes, some of which were dry because the field work was carried out at the very beginning of the rainy season. However, some samples were found in areas that are known by local people to be non-inundated (elevated) areas.

During our field study we collected 85 samples (dung piles). Table 1 summarizes relative frequency of viable zapote seeds and seedlings in these samples. All ungerminated seeds were found intact.

Table 1. Frequency and percentages of samples with seeds and seedlings.

	FREQUENCY	PERCENTAGE
Total number of samples	85	
Samples with intact seeds and seedlings	31	36.5%
Samples with seeds and seedling in the same dung pile	9	10.6%
Samples with seeds (only three samples presented more than one seed per dung pile)	25	29.4%
Samples with seedlings (seven samples presented more than one seedling)	15	17.6%

Discussion

Previous studies with Baird's tapir in Mexico (Chiapas) and Costa Rica included aspects of their diet, abundance and distribution, and human impacts (Terwilliger, 1978; Naranjo, 1995; Naranjo and Cruz, 1998; Foerster and Vaughan, 2002; Tobler, 2002; Lira-Torres et al., 2004). There are no previous studies in the Yucatan Peninsula, and specifically on species dispersed by tapirs. Naranjo and Cruz (1998) reported a species of the genus *Manilkara* (described up to genus) as being consumed by tapirs in The Sepultura Biosphere Reserve in Chiapas, Mexico. However these authors do not mention the viability of these seeds or of any zapote seedlings found in tapir dung. There is no other record of *Manilkara zapota* either as part of the tapir's diet or as a seed dispersed by tapirs.

Almost 40% of the dung samples contained seeds or seedlings. The results of this preliminary study contradict previous conjecture that *Manilkara zapota* should be predated by tapirs (Janzen, 1982; Williams, 1984). We provide evidence that tapirs are moving intact zapote seeds from one place to another, and that these seeds are viable and can germinate; future experiments will determine whether germination is indeed facilitated by the dung. Alone these data suggest that *Manilkara zapota* can now be added to the list of species already reported as being dispersed by Baird's tapir (Naranjo, 1995; Williams, 1984). Whether dispersal of viable seeds and subsequent germination by the tapir has a significant impact on the spatial distribution of zapote depends greatly upon whether the dung is left in habitat suitable for subsequent seedling

growth and survival. The majority of dung samples were found around *aguadas* where adult zapote trees are often found, suggesting that these dung deposition sites are not unsuitable for zapote growth. Current seed germination experiments are addressing this important issue directly.

The functional role of the Baird's tapir as a seed disperser in this and other regions remains poorly understood and further study is clearly necessary. Its status as the largest extant forest-dwelling mammal in Central America (Olmos, 1997) suggests a unique functional role as the disperser of certain abundant large seeded tree species (Fragoso and Huffman, 2000). Whether this endangered species is a significant determinant of the structure of tropical forests (Fragoso, 1997) throughout its range is a question of considerable pure and applied relevance.

Conclusion

Although previous observations in Costa Rica suggested that *Manilkara zapota* seeds were too weak to withstand the molar mill of tapirs (Janzen, 1982), this paper presents field observations and the first record on *Manilkara zapota* seed dispersal by Baird's tapir in the Greater Calakmul Region in Mexico. Intact seeds and seedlings of *Manilkara zapota* were observed in tapir dung. However, further work on seedling establishment success is required to ascertain the importance of the Baird's tapir as a major determinant of *Manilkara zapota* abundance and distribution.

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***Manilkara zapota*:**
The large sweet fruits attract large herbivores.

Etnozoología de la Danta (*Tapirus terrestris*) en Venezuela

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Abstract

In order to know the relationship between local peoples and tapirs we developed personal interviews to gather information about the uses of low-land tapirs and their products (meat, bones, skin, etc.). The methodology implemented consisted in establishing conversations with local hunters and their families living inside tapir habitat, and using color plates with pictures of different wildlife species (mammals and birds) so hunters could point out the species they hunted. In addition, a literature revision was done to gather information for other areas of the country not visited during this study. We conducted 118 interviews in Aragua and Yaracuy States. Around 56% of the interviewed persons do not hunt tapirs due to various reasons (mythic-religious, legal penalties, species unknown, pity); 43,4% hunt tapirs for consumption and medical use. We found five different uses given to *Tapirus terrestris* in northern Venezuela. Low population levels and possible local extinctions are suspected in two states by means of indirect indicators.

Introducción

Un aspecto a considerar para la conservación de un recurso natural renovable es su valor o importancia para un país o región determinada. La fauna silvestre es un recurso para el hombre como alimento y como proveedor de materia prima para otros usos. Sin embargo el manejo y aprovechamiento irracional a los que han sido sometidas algunas especies y los hábitats donde ellas residen están comprometiendo la permanencia de las mismas.

Las dantas no escapan de esta realidad; la destrucción de hábitats y la caza desmedida están afectando sus poblaciones. En Venezuela *Tapirus terrestris* ha sido aprovechada como recurso alimenticio, medicinal y artesanal por etnias indígenas (Fernández, 2000; Mondolfi, 1971; Sponsel, 1986). Información sobre el uso de la danta por otros

habitantes es escasa debido a la carencia de estudios realizados (González-Fernández, 2002; Vispo, 1998).

El siguiente reporte presenta los resultados obtenidos hasta Diciembre de 2003 y constituye un diagnóstico preliminar de la etnozoológica de la especie en Venezuela, con el objeto de que sirva de base para el diseño e implementación de programas de manejo y/o aprovechamiento sustentable del recurso a nivel rural, tal como lo expone una de las líneas estratégicas del Plan de Acción de la Estrategia Nacional de Diversidad Biológica (MARN 2001).

Metodología

Llevamos a cabo entrevistas con cazadores y gente local en dos estados al norte de Venezuela, Aragua y Yaracuy, siendo este último nuestra principal área de interés y donde colocamos nuestro mayor esfuerzo. En la medida de lo posible, tratamos de establecer un ambiente de confianza entre el entrevistado y entrevistador. El tema central de la entrevista fue sobre fauna silvestre en general; se mostraron láminas a color de mamíferos y aves (Figura 1) sobre las que los entrevistados indicaron las especies conocidas y presentes en el área. Una vez identificada la danta, buscamos averiguar indirectamente: si el entrevistado o alguien conocido cazaba la especie, cuántos ejemplares se cazaban por año, y qué uso recibía la danta o sus productos (carne, piel, huesos o vísceras). La información correspondiente a los demás estados del país se complementó con revisión bibliográfica y consulta con especialistas (F. Bisbal Museo de la Estación Biológica de Rancho Grande; A. Ferrer Museo de Historia Natural La Salle; L. Salas Tapir Specialist Group).

Resultados Preliminares

Se realizaron 118 encuestas, cinco en el norte de Aragua y 113 en 22 localidades del estado Yaracuy. Los entrevistados de Aragua señalaron que desde hace más



Figura 1. Realización de entrevistas a pobladores de Cumboto en el estado Aragua, Venezuela.

de cinco años no cazaban dantas, ni conocían a alguien que lo hiciera. Los usos que le daban a la especie eran alimenticio y medicinal (uñas usadas en el tratamiento de la epilepsia).

En el estado Yaracuy el 56,6% de los consultados no cazaban danta, pero sí otras especies de fauna, por varias razones (e.g., mítico-religiosas, sanciones legislativas, desconocimiento de la especie, lástima, etc.). Cuarenta y nueve (43,4%) entrevistados dijeron que han cazado o cazaban danta si la conseguían, dándole un uso alimenticio (40) y medicinal (9), pero indicaron que se ha vuelto una pieza escasa. Silva y Strahl (1996) y Vispo (1998) reportan el uso del tapir sólo como alimento por pobladores locales no indígenas al norte y sur de Venezuela, respectivamente. La Figura 2 resume los usos dados a la danta en el Estado Yaracuy.

El uso de tapires por indígenas en Venezuela ha sido señalado en la literatura (Bisbal, 1994; Fernández, 2000; González-Fernández, 2002; Mondolfi, 1971; Sponsel, 1986). Para ellos las dantas constituyen una importante pieza de caza. Las etnias Yekuana y Panare, en el estado Bolívar, utilizan al tapir como fuente de alimento, consumiendo total

y parcialmente su carne y vísceras, respectivamente. Estas etnias emplean las uñas para la fabricación de artesanías que luego pueden ser vendidas. Los Panare usan la grasa como medicamento para afecciones respiratorias. Para los Piaroa, en el estado Monagas, es considerado un animal sagrado en el que reencarnan sus antepasados, por esta razón no es cazado. Adicionalmente los Yekuana suelen emplear el hígado como un augurio para la caza en un lugar determinado (L. Salas *com. pers.*)

Tapirus terrestres es una pieza de caza de subsistencia importante en Venezuela, preferido por la cantidad de biomasa que puede ofrecer, mas no por el sabor de su carne. Algunos sub-productos como las uñas y la grasa son utilizados para la elaboración de amuletos, adornos y medicamentos.

Algunos cazadores no indígenas tienden a ser oportunistas, pudiendo dar muerte a un tapir si lo consiguen en su paso. Por otro lado, una pequeña parte de la población muestreada desconoce a la especie y otro porcentaje la considera un animal sagrado; por estas razones no la cazan.

Información indirecta, obtenida en este estudio, sugiere bajos niveles poblacionales y posibles extinciones locales en las montañas de Cumboto y Cata en el Estado Aragua y en las tierras bajas del Estado Yaracuy específicamente en El Guayabo.

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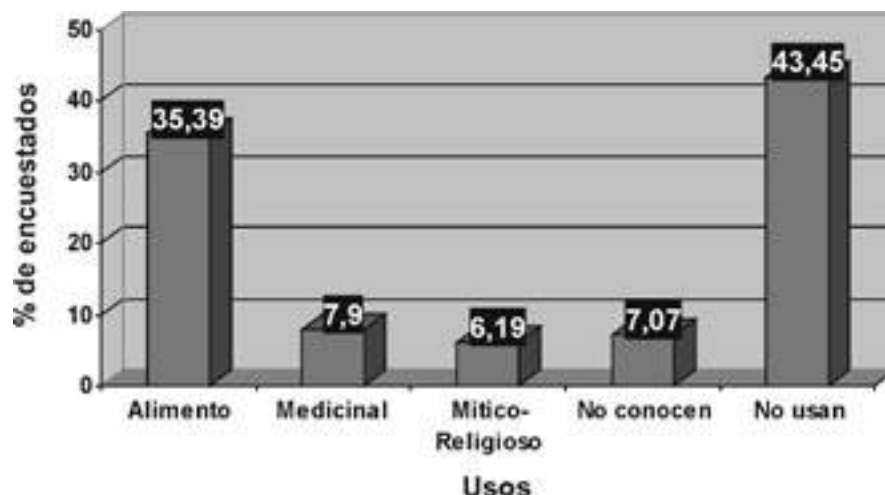


Figura 2. Usos del Tapir Amazónico en el Estado Yaracuy, Venezuela.

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By **Brendan Godley**

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Scope

This newsletter aims to provide information regarding all aspects of tapir natural history. Items of news, recent events, recent publications, thesis abstracts, workshop proceedings etc concerning tapirs are welcome. Manuscripts should be submitted in MS Word.

Deadlines

There are two deadlines per year: 31 March for publication in June and 30 September for publication in December.

Please include the full name and address of the authors underneath the title of the article and specify who is the corresponding author.

Full length articles on any aspect of tapir natural history are accepted in English, Spanish or Portuguese language. They should not be more than eight pages in length (including references). In any case, an English abstract is required.

Figures and Maps

Contributions can include black and white photographs, high quality figures and high quality maps and tables. Please send them as separate files (formats preferred: jpg, pdf, cdr, xls).

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Please refer to these examples when listing references:

Journal Article

Herrera, J.C., Taber, A., Wallace, R.B. & Painter, L. 1999.

Lowland tapir (*Tapirus terrestris*) behavioural ecology in a southern Amazonian tropical forest. *Vida Silv. Tropical* 8:31-37.

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Tapir Conservation

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