ISSN 1813-2286
Volume 16/2 ■ No. 22
December 2007

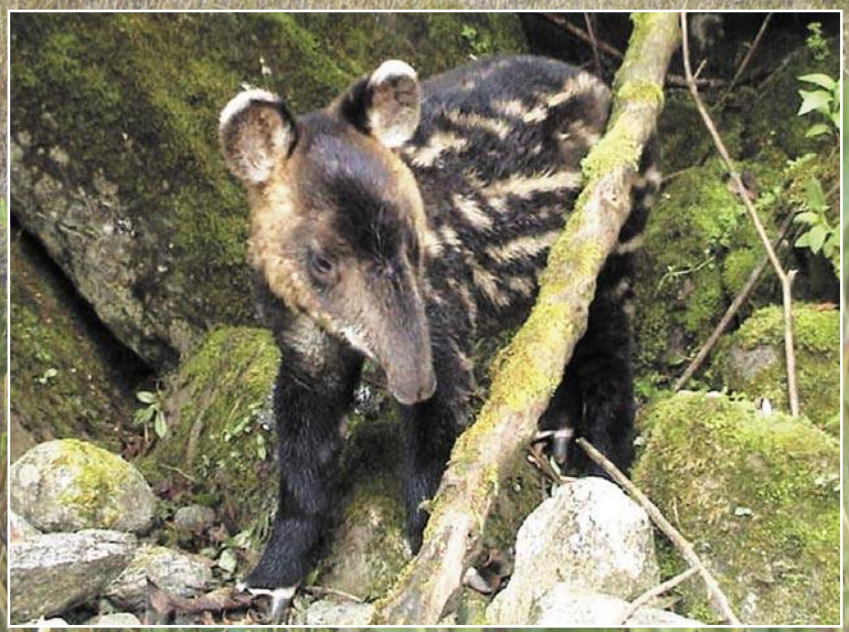
TAPIR SPECIALIST GROUP

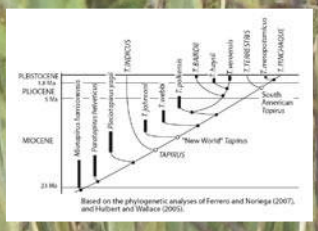
Tapir Conservation

The Newsletter of the IUCN/SSC Tapir Specialist Group

www.tapirs.org

Edited by Leonardo Salas and Stefan Seitz





Printing and distribution of the Tapir Conservateion Newsletter is supported by the Houston Zoo Inc., 1513 N. Mac Gregor, Houston, Texas 77030, United States, http://www.houstonzoo.org

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Volume 16/2 ■ No. 22 ■ December 2007

TAPIR CONSERVATION

Abbreviation **Tapir Cons.**

ISSN **1813-2286**

Production & Distribution This issue is kindly sponsored by Houston Zoo Inc., Cons. Program Asst., Kelly Russo, 1513 North Mac Gregor, Houston, Texas 77030, USA.

Website **www.tapirs.org**

FROM THE CHAIR

Letter from the Chair

By Patrícia Medici

It is a pleasure to announce that we are well on our way in the process of organizing the upcoming **Fourth International Tapir Symposium** that will be held at Parque XCARET in Playa del Carmen, Cancún, Mexico, from April 26 to May 1st, 2008.

The First International Tapir Symposium held in Costa Rica in 2001 brought together for the very first time 85 tapir experts and conservationists from 21 different countries worldwide. For the Second International Tapir Symposium, held in Panama in 2004, we had the participation of 90 representatives from 19 countries. The last conference, the Third International Tapir Symposium held in Argentina in 2006, included 100 tapir conservationists from 25 countries. The TSG's International Tapir Symposium has proved to be a critical occasion for tapir conservation worldwide, promoting the perfect opportunity and atmosphere to exchange ideas and experiences, and to foster our global network of tapir researchers and supporters. The Fourth International Tapir Symposium will once again bring together a multi-faceted group of tapir experts and conservationists, including field biologists, environmental educators, captivity specialists, academics, researchers, veterinarians, governmental authorities, politicians and other interested parties.

Specific topics discussed during the symposium will be tapir field research and conservation, population and habitat management, re-introductions and translocations, husbandry and captive management, environmental education and outreach, training and capacity-building, involvement of local communities, marketing, fundraising, governmental regulations and permits, veterinary issues, human-tapir conflicts and many other issues. The first part of the conference will feature paper and poster presentations by tapir researchers and keynote speakers, and the second part will be devoted to workshops and round-tables addressing specific topics relevant to tapir conservation. All sessions will be conducted in English and simultaneously translated to Spanish.

A very important session to be carried out during the conference in Mexico is the TSG Strategic Planning Workshop, during which we will review and evaluate what was accomplished of our Strategic Plan for 2006-2007 that was developed and prioritized during the Third Symposium in Argentina, and formulate a new Strategic Plan for 2008-2010.

Last but not least, the Fourth Symposium will provide a unique opportunity to establish and structure a Tapir Action Plan Implementation Taskforce to oversee the implementation of the recently finalized 2007 version of the IUCN/SSC Tapir Action Plan. The main role of this taskforce will be to promote and support the plan throughout tapir range countries in Central and South America, and Southeast Asia, and help it reach all possible stakeholders. Our new Tapir Action Plan is a "living document", which will be constantly reviewed, updated and adapted according to evolving and emerging tapir conservation needs. Additionally, we will provide support for any initiatives aiming to implement

Members of the Fourth International Tapir Symposium planning committee during visit to Parque XCARET in Mexico in August 2007. From left to right: Alan Shoemaker, Efrain Castillo, Alberto Mendoza, and Patrícia Medici.

actions, including technical assistance, help with proposal development and fundraising and political lobbying. The progress made in implementing the plan will be evaluated every three years during the International Tapir Symposium.

The main partners on the organization of the Fourth International Tapir Symposium are the IUCN/SSC Tapir Specialist Group (TSG), Parque XCARET in Mexico, Association of Zoos and Aquariums (AZA) Tapir Taxon Advisory Group (TSG), European Association of Zoos and Aquaria (EAZA) Tapir Taxon Advisory Group (TAG), and Copenhagen Zoo, Denmark. Members of the symposium's planning committee – Patrícia Medici, Alberto Mendoza, and Alan Shoemaker – visited Cancún in August 2007. We had a series with meetings with XCARET's General Manager – Eduardo Briones – and Director of Animal Collections – Efrain Rios Castillo – as well as with the owner of the facility, the architect

Miguel Quintana Pali, who committed the resources of their entire staff to assist the TSG in organizing, promoting and conducting this conference.

XCARET is one of the finest zoological organizations in Latin America and the park will provide excellent infra-structure and local logistics for our conference. XCARET is located on the Caribbean, one of the most beautiful coastal regions in the world. It is also surrounded by significant Mayan historical sites. Access to the region is very easy via direct and often non-stop flights to Cancún, a major tourist destination in Latin America. For further information about XCARET, please visit their website at: www.xcaret.com. Symposium sessions will be carried out at XCARET and participants will be staying at the Hotel Allegro **Occidental** in Playa del Carmen (www.occidentalhotels .com/allegroplayacar/index.asp). A list of other options for alternative hotels will be made available at a later stage, including contact information and websites so that participants can make their own reservations.

Currently, the symposium organizing committee has been working non-stop to put this conference together! We are carrying out a major campaign to raise the necessary funds for the conference, as well as organizing the local logistics with XCARET, booking local services, contacting speakers and putting together the conference program. Registration for the symposium is available online at: http://tapirs.org/symposium/registration.html. We will soon be ready to send out a call for abstracts for oral presentations and posters.

We are confident that this is going to be another extremely successful event of the Tapir Specialist Group and we would like to invite all of you to be with us in Cancún! Make sure to put the Fourth International Tapir Symposium on your schedule for 2008!

On another note, our Marketing Coordinator and Webmaster Gilia Angell continues to work hard to raise the profile of the Tapir Specialist Group. Our website, tapirs.org was selected by *Science Magazine* as its October 15 "Netwatch" website. Each month, Science features a website it finds particularly interesting and unique among science-related sites. Congratulations to all of you for your document, news, interview, article, writing, and photo contributions to our site! Our combined content contributions to tapirs.org make it what it is today: a destination for information about tapirs and tapir conservation. See a printout of the article here: http://www.tapirs.org

Additionally, Gilia worked with Canon and National Geographic photographer Joel Sartore earlier this year to successfully pitch the Lowland tapir for the December issue of National Geographic! Each month in National Geographic Magazine & Canon Cameras features an endangered animal in its advertisement. The ad describes the animal, the threats to it and invites readers to find out more at ngm.com/canonwildlife. Please visit our website to download the ad: http://tapirs.org/index.html

Our photo collection in the TSG website continues to grow. We have fielded inquiries about photo usage and sold a number of photos (including the one seen in Science Magazine) -- all proceeds benefiting the TSG's Conservation Fund. As always, we invite all of you to send us your very best high resolution photos of tapirs in the wild and/or in captivity to add to our collection of fundraising photography: http://tapirs.org/img/picture-collection/

This issue of *Tapir Conservation* includes articles from some of our TSG Country Coordinators reporting on their progress on the development of National Action Plans for Tapir Conservation. As you will see, we are well on our way in the process of developing National Plans for tapir conservation in all range countries.

Still on the subject of action planning, I would like to let you all know that the VORTEX VPJ files developed during the PHVA Workshops for all four tapir species will be made available online on the TSG Website very soon. These VPJ files are baseline models for tapir population modeling. Computer modeling is a valuable and versatile tool for assessing risk of decline and extinction of wildlife populations. Complex and interacting factors that influence population persistence and health can be explored, including natural and anthropogenic causes. Models can also be used to evaluate the effects of alternative management strategies to identify the most effective conservation actions for a population or species and to identify research needs. Computer modeling using the simulation software package VORTEX has been used in all four actions plans developed by the TSG over the past five years.

Tapirs are distributed across different ecosystems where they face various levels types of threats. VORTEX models can be extremely useful to assess these threats and the potential threshold at which the threat may cause extinction of the tapir population. As a result, having access to these VPJ files will allow tapir conservationists willing to model their tapir populations all throughout the world to do so.

Another exciting piece of good news is that all SSC Specialist Group Chairs will be getting together from February 11 to 14 in Al-Ain, Abu Dhabi, United Arab Emirates (UAE). I will attend this important meeting and represent the Tapir Specialist Group. This gathering will enable all SG Chairs to share the successes and challenges of their Specialist Groups, allowing us to understand more about the role we have within the Species Survival Commission and IUCN. We will also have the opportunity to contribute to SSC's plans, share new approaches, make important contacts, discuss topical issues (like restructuring, fund-raising

and policy formulation), and meet the SSC Steering Committee and some of the Species Programme Staff face-to-face. I will report on the results of this meeting in the next issue of Tapir Conservation.

As a final note, I would like to ask you to please note my new contact information below. I am now based in Corumbá, Mato Grosso do Sul State, in the very heart of the Brazilian Pantanal. After twelve years working on lowland tapirs in the Atlantic Forests of São Paulo State, I am now expanding my reach and establishing a Lowland Tapir Conservation Initiative all throughout Brazil. The first step will be the establishment of a long-term lowland tapir research and conservation project here in the Pantanal biome … and from here we will move forward to the Amazon, Cerrado and any other biomes where our tapir conservation efforts will be needed!

Come and visit us in the Pantanal!
But before that … see you all in Mexico in a few months!

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NATIONAL ACTION PLAN REPORTS

Plan de Acción Danta – Costa Rica

Por Fabricio Carbonell T.

Introducción

Una vez concluído el taller para PHVA en Belice, en el 2005, nos propusimos elaborar un Plan de Acción para Costa Rica. A ese fin, se planificó un taller nacional en noviembre de ese mismo año donde se invitó a varias personas para tratar este importante tema. Debido a las limitaciones de tiempo (1 sólo dia), al final se obtuvo una lista de elementos a tomar en cuenta en un segundo taller, y acciones que se podrían empezar a desarrollar.

En este taller nacional (apoyados por la Unión Mundial para la Conservación de la Naturaleza, Oficina Regional para Mesoamérica (UICN-ORMA)) se destacaron algunas diferencias de trabajo con respecto al PHVA en Belice. Por ejemplo:

- En Costa Rica se invitó a participar a pobladores locales, algo que no podría haberse hecho en el taller de Belice. Así, los lineamientos generales de Belice son adaptados a la realidad local de Costa Rica al invitar a participar a todas las personas e instituciones involucradas en la conservación del tapir.
- En el taller de Belice, las ciencias de la conservación biológica y la biología determinaron las líneas de trabajo. En Costa Rica los temas fueron determinados por los participantes.
- En Belice las principales líneas de trabajo para la conservación de la especie fueron:
  1.) Manejo de Hábitat (ordenamiento territorial);
  2.) Manejo de Poblaciones Silvestres;
  3.) Impactos Humanos y Educación;
  4.) Biología de Población y Evaluación de Riesgos; (modelos) y
  5.) Manejo ex-Situ (en cautiverio).
- Para el caso de Costa Rica, fueron:
  1.) Conocimiento científico,
  2.) Sensibilización y Educación Ambiental,
  3.) Conocimiento integral no formal, y
  4.) Manejo y Gestión del hábitat (ordenamiento territorial)

Plan de Acción

Con los elementos descritos, los asistentes definieron metas para cada uno. A continuación presento un resumen de los principales avances.

1. Conocimiento científico:
Se ha avanzado mucho con respecto al estudio de la biología del tapir en el pasado. Los principales aportes han sido de Charles Foerster en Corcovado (1994-hasta hoy), Juan de Dios Valdez en Corcovado (2004-5), Feng Mei, estudios en el Parque Nacional Volcán Barba (2004-5), Olivier Chassot et al en la zona norte en la nueva Reserva de la Biosfera Agua y Paz (2005). Antes de estos trabajos se investigó en el Parque Nacional

Volcan Tenorio (Fabricio Carbonell et al. (2000), en el Parque Nacional Santa Rosa a traves de Daniel Janzen (1980-2), Williams K. (1984) y en el Parque Nacional Corcovado con los trabajos de Eduardo Naranjo (1995). Ademas se han realizado estudios genéticos, hormonales y de enfermedades durante el proyecto de Charles Foerster en Corcovado. En la actualidad se continúa el proyecto en Corcovado a cargo de Kendra Bauer y se han hecho trabajos de investigación de dantas en la zona sur del país principalmente en la Reserva de la Biosfera La Amistad, tanto en el sector caribe como pacífico, frontera con Panamá.

2. Sensibilización y educación ambiental:
Junto con los trabajos de investigación en la Reserva de la Biosfera La Amistad, la educación ambiental se ha orientado en tales lugares con pobladores indígenas y campesinos, especialmente líderes y maestros comunales, también asociaciones de turismo y comités de protección local La educación ambiental con esta especie en algunos casos, fue conjunto con otras investigaciones de especies amenazadas (chanchos de monte, jaguar, etc.), donde se integró a pobladores como asistentes de investigación en algunos casos.

3. Conocimiento integral no formal:
De acuerdo al Plan preliminar se trató de involucrar a las comunidades para que tomen la conservacion como fuente de desarrollo, en ese sentido, algunas comunidades indígenas han venido trabajando registrando avistamientos de tapir en áreas donde antes no se veía, como es el caso de la comunidad de Yorkin en Talamanca Bribri, zona fronteriza con Panamá. Además durante el trabajo de campo sobre investigación científica se recopiló información del conocimiento tradicional. Algunas reservas indígenas como el caso de Kékoldi han conformado un grupo de "guardarecursos" que realizan vigilancia periódica en la reserva evitando la cacería y tala ilegal.

4. Manejo y gestión del hábitat:
Se tiene identificado para algunos sectores de las áreas de conservación La Amistad Pacífico, Caribe, Cordillera Volcánica Central, Huetar Norte, Arenal Tempisque y Osa, sectores de importancia para la conservación de la especie a largo plazo y la necesidad de corredores biológicos locales. Por otro lado, debido a una disminución de la cacería y aumento del turismo en ciertos Parques Nacionales se está viendo una inusual salida de dantas de las áreas protegidas hacia áreas de cultivo (Parque Nacional Volcán Tenorio), carreteras (Parque Nacional Braulio Carrillo) y de protección privada (Parque Nacional Barva), los dos primeros terminaron en la muerte del animal y un acercamiento "peligroso" con los pobladores campesinos, en el caso de la zona de protección privada, las personas pidieron asesoría sobre la forma de actuar y si eran peligrosas para el turismo.

5. Gestión de la conservación:
En el tema relacionado con políticas no se ha podido avanzar al respecto. Sin embargo se incursionó en la promoción del "símbolo" danta como fuente de inspiración para diseños de nuevos materiales, esto se llevó a cabo con el curso de posgrado "Far side, el lado notable del ambiente" de la Universidad Veritas, la universidad del arte, diseño y arquitectura. También se apoyó al Plan maestro de colección regional para el Tapir centroamericano para el traslado de individuos entre zoológicos.

Conclusiones

No podría decir que hemos avanzado mucho con respecto al Plan de Acción para la conservación del tapir en Costa Rica, sin embargo se cuenta con información dispersa que falta sistematizar y es probable que en el país se hayan iniciado nuevas investigaciones sobre la especie. Un siguiente paso sería poder contar con personal a tiempo parcial vía voluntariado o fondos específicos que pueda dar seguimiento constante a las diferentes actividades, trabajos e investigaciones que se están dando en torno a esta especie. Esperamos pronto actualizar y mejorar el Plan de Acción preliminar que tenemos. Por favor más información comunicarse con Fabricio Carbonell,

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Construcción Participativa de la Estrategia Nacional para la Conservación de los Tapires del Ecuador

Por Leonardo Ordóñez Delgado
y Fernando Nogales

Luego de la participación activa de varias instituciones e investigadores nacionales en el taller de PHVA efectuado para la especie *Tapirus pinchaque* (Colombia 2004 – Ver Lizcano et al. 2005), se priorizó, como una actividad urgente para nuestro país, la necesidad de contar con una estrategia nacional que oriente

los esfuerzos hacia la conservación de este género en el Ecuador. De esta forma, las siguientes líneas tienen la finalidad de detallar progresos en la elaboración de este documento.

Paso 1. Base de datos de colaboradores:
Se estructuró una base de datos de contactos que apoyan, por su experiencia, a la formulación de la estrategia. Estos colaboradores deberían tener vinculación directa o indirecta con la temática, o con otras temáticas relacionadas, por ejemplo: levantamiento de fondos, formulación de propuestas, trabajo en ecosistemas en los cuales se distribuyen los Tapires, etc. En este momento y en el desarrollo del trabajo ejecutado se han involucrado 67investigadores, pertenecientes a 28 instituciones en Ecuador.

Paso 2. Elaboración y aplicación de una encuesta de trabajo respecto a los tapires en Ecuador:
Se elaboro y se aplico una encuesta a todos los colaboradores que se ha logrado ingresar a la base de datos de contactos en el Ecuador. Dicha encuesta abarcó diferentes temáticas sobre los Tapires en el país, las cuales son necesarias para la elaboración del documento borrador de la estrategia. Cabe mencionar que el modelo de la encuesta aplicada está basado en otras encuestas utilizadas para esta misma finalidad en Colombia y Argentina.

Paso 3. Documento borrador de la estrategia:
En base a la indagación a los expertos y colaboradores vinculados (por medio de la encuesta), se envía un documento básico (o planteamiento) sobre la estrategia de conservación de los Tapires en el Ecuador a cada uno de los contactos. Tenemos previsto recabar estos comentarios hasta el mes de diciembre del presente año. El documento inicial que contará con los comentarios de los expertos será corregido, en base a todas las observaciones planteadas. Este documento será la base de discusión del taller final de trabajo sobre la estrategia.

Pasos futuros. Taller de revisión de la estrategia:
Se efectuará un taller de trabajo con participación de todas las personas e instituciones involucradas, para revisar el documento de la estrategia planteada y producir una estrategia definitiva. El taller tendría como objetivo adicional promover compromisos para poner en práctica de forma inmediata la Estrategia Nacional de Acción. Seguidamente, se presentara ante los participantes del proceso y publico nacional, la Estrategia Nacional de Acción de Conservación de los Tapires en el Ecuador, por parte de la autoridad competente.

Se tiene previsto completar la Estrategia en los próximos seis meses, a partir de octubre del presente año. Es importante mencionar que se cuenta con el apoyo decidido del Ministerio del Ambiente del Ecuador para lograr que este documento sea legalizado por medio de un registro oficial, el cual establezca la Estrategia Nacional de Acción como política de estado en el país.

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Report on Progress Developing Argentina's National Action Plan

By Silvia Chalukian

In Argentina tapirs are listed as endangered in the Red Mammal Book; in the past 100 years the species range in the country has shrunk to almost half (46%) its original size. Most, if not all the tapir populations in good conservation status remain in protected areas.

The development of Argentina's National Action Plan started in August 2005, as we distributed questionnaires by e-mail and post, to governments (provincial and national), researchers and zoos. We collected records of localities with tapir presence, status and threat perceptions, as well as a variety of suggestions for a conservation strategy.

By the end of 2006, we organized two workshops in two important tapir regions, in the Northwest (Salta) and the Northeast (Chaco) of Argentina, to discuss the results from the questionnaires. The purpose of the workshops included developing a current known distribution to update the maps produced at the "Lowland Tapir (*Tapirus terrestris*) and White-Lipped Peccary (*Tayassu pecari*) Range-Wide Status Analysis" workshop (held in Bolivia on 2005), reviewing threats and proposing conservation activities for the short, medium and long time. (Results of the questionnaires were presented at the III International Tapir Symposium 2006 in Buenos Aires). We worked in small groups and plenary, weighing threats and developing strategies and priority actions, assigning responsibilities and timelines, assessing technical, social and economical feasibility and limitations. Review data also included satellite images to map threats (NW) and distribution updates. A total of 46 people attended the workshops, from government agencies (Provincial, National Fauna and Parks agencies), Universities, researchers, local people, private owners, a forestry enterprise, students, and the species coordinator. We had various sup-

Salta workshop participants.

Workshop held in Chaco (Northeast), welcome words from the Director of Fauna, Chaco Province Government.

Workshop held in Salta (Northwest) working in groups.

ports that made this possible, mainly National Fauna Administration, Chaco Province, a local foundation (Fadha), National Parks, and four private institutions.

A synthesis of the first draft was presented at the PHVA workshop in Sorocaba, 2007. We recorded tapir presence in 302 localities. The main threats identified for in situ conservation were: habitat loss and fragmentation, hunting, cattle ranching and infrastructure development. For ex situ conservation the main threats were endogamy, sanitary management insufficiently known, lack of public awareness, inadequate enclosures, and insufficient coordination between Zoos and field researchers.

On August 2007, during a meeting of the "ex situ group" held in Salta, we applied the same methodology to develop an action table, and made progress on an environmental education plan.

The last step is to organize a common workshop to make a review of the drafts, and establish a synergism between ex situ and in situ activities. After the workshop, the final Action Plan will be completed. Unfortunately, due to lack of funds, the final workshop, planned in November 2007, was postponed.

Coordinator of the Action Plan: Silvia Chalukian, assisted by Leonidas Lizarraga and Soledad de Bustos (NOA Tapir Project). Coordinator of the ex situ group: Viviana Quse. Coordinator or Education Plan: María de la Paz Isola, assisted by Lucas Stephan.

Silvia Chalukian
E-mail: schalukian@yahoo.com.ar

Chaco workshop participants.

Progress Report of National Action Plan for Tapir Conservation in Indonesia

By Wilson Novarino

A National Action Plan for the tapir Indonesia was initiated in 2006. The elaboration of the plan was transferred to a national conservation NGO named Pusat Informasi Lingkungan Indonesia (PILI – Center for Environmental Information Indonesia) and the Directorate of Forest Protection and Biodiversity Conservation (PHKA) of the Ministry of Forestry Indonesia. PILI, with support from PHKA, developed a draft proposal for seeking funds. However, this mechanism did not work properly.

As a mega-biodiversity country, Indonesia has several flagship animals and plans. The Indonesian wildlife management authority (PHKA) must set up their work priorities based on such plans. In 2007, PHKA conducted workshops to develop national action plans for the Sumatran tiger, Orangutan, Sumatran and Bornean Elephant, Anoa, Javan Hawk-eagle and Bali Starling. According to information from PHKA, a National Action Plan for the Tapir in Indonesia will be completed in 2008, if there are funds available from the Indonesian government and other sponsors.

Recently, some of large mammals monitoring projects have been conducted in Sumatra, where the tapir is distributed in Indonesia. Almost all of the projects have tapir data, but not yet analyzed or published. We expect all that data will be compiled on a national database and will be used to develop the action plan when the PHKA conducts the workshop. Some contacts have been made to data-holding parties, and they are giving positive feedback on this issue.

Wilson Novarino
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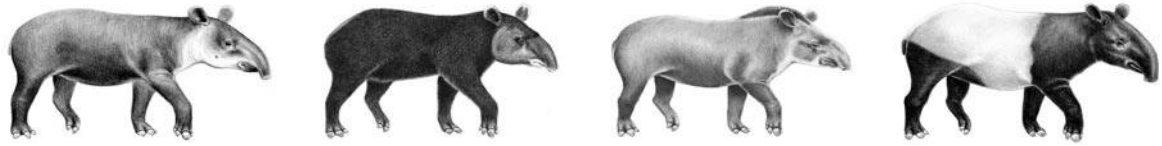

Illustrations by Stephen Nash

WORKSHOPS

Seminar on the Breeding Biology of Malay Tapirs in Captivity in Indonesia

By Wilson Novarino

A Seminar on the Breeding Biology of the Malay Tapir was conducted on October 31, 2007, at the Taman Margasatwa Ragunan (Ragunan Zoo), Jakarta. This noteworthy seminar with six keynote speakers was attended by more than 50 participants including zoo representatives, university lecturers and students, researchers, staff of the Ministry of Forestry.

During the opening ceremony, the director of the Ragunan Zoo, Dr.h. Sri Mulyono, M.Sc., stated that currently very few enrichment activities have been applied to tapir enclosures in Indonesian zoos. The lack of communication between zoos holding tapirs was also noted. One of the goals of the seminar was to invite participants to share the information that they have and also to receive more information on how to manage tapirs in zoos. The seminar was also held as celebration for the recently born tapir calf at the Ragunan Zoo.

The seminar was officially opened by Dr. Tonny Soehartono, M.Sc., as Director of Biodiversity Conservation, Directorate General Forest Protection and Biodiversity Conservation, Ministry of Forestry (PHKA). As keynote speaker, Dr. Soehartono gave a talk titled "Tapir Conservation in Indonesia", which described the current information available on tapir biology, their global and national distribution, and the PHKA strategy on conservation management of the species in Indonesia, both in situ and ex situ. According to Dr. Soehartono, little attention has been paid to the conservation issues affecting Malay Tapirs in Indonesia. The Indonesian government is still focusing their resources on other issues such as poverty, education and economic sectors.

Following the seminar was a presentation by Wilson Novarino. In his presentation, Mr. Novarino, M.Sc., mentioned efforts of Malay Tapir conservation in Indonesia, both in situ and ex situ, detailed information about the biology of the tapir, nomenclature,

classification, feeding, reproduction behavior, life cycle, and general information about Malay Tapir holding zoos at national and global levels. In this session participants were also informed about the Tapir Specialist Group IUCN (TSG) and the Tapir Preservation Fund as potential funding agencies on tapir conservation, and about minimum husbandry standards and the availability of a tapir enrichment document prepared and distributed by TSG. Mr. Novarino also invited participants to become more active and increase their involvement in tapir conservation on a global level by joining as TSG members.

Dr. Ligaya Tumbelaka, M.Sc., presented her paper titled "Studbook Buku Catatan Silsilah". This paper offered information about the role of zoos and studbook keepers on conservation. Mrs. Ligaya provided detailed information about the roles of a studbook keeper, responsibilities, etc., based on her experience as studbook keeper for the Sumatran tiger.

The third session in the seminar focused on how to manage tapirs in zoos. Dr.h. Fathul Bari, from Bandung Zoo, related his experiences on the management of tapirs in zoos. His paper described captive tapir husbandry, medical records and reproduction activity. This session was followed by a presentation by Dr. Gono Semiadi from the Indonesian Institute of Science (LIPI). Dr. Semiadi shared information about the current status and breeding problems of Malay Tapir in Indonesia.

During the last session participants were informed about captive tapir management in foreign zoos. Dr. Darrin Collins, from the Woodland Park Zoo and who currently works at the Wildlife Conservation Society Indonesia Program, presented his paper titled "Maternal and Neo-natal Protocols used for the Successful Breeding Management of the Malay Tapir (*Tapirus indicus*) at the Woodland Park Zoo". Dr. Collins provided the participants with a detailed look at the management program of the WPZ to help them initiate their own tapir breeding programs, and how to handle baby calves.

At the closing ceremony, the Chair of the Organizing Committee, Dr.h. Bambang Triana, encouraged zoo participants to adapt the tapir husbandry standards using the information gained during the seminar to improve the management quality . During the seminar, several issues arose, such as: the lack of information about tapir holding zoos in Indonesia, number of tapirs in each zoo, and the need for a studbook keeper. Dr. Soehartono addressed this by encouraging the participants to establish a network to ensure better communication in the future.

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Opening ceremony session: Dr.h. Sri Mulyono, Dr.h. Bambang Triana, Dr. Tonny Soehartono.

Dr.h. Fathul Bari, presenting his experience on manage tapir in Bandung Zoo.

Dr.h. Bambang Triana, as chair of Organizing Committee giving a souvenir to Dr. Darin Collins.

SCIENTIFIC REPORTS

2007: Two major Steps for Tapir Conservation in French Guiana

By Benoit de Thoisy

The Guianas host a single contiguous forest block that represents more than one third of remaining Neotropical forest coverage, with expected good conservation status of several large mammals, including the Jaguar (Marieb 2006), the Giant Otter (Groenendijk 1998), and the Lowland Tapir (Taber et al. 2006). Conservation policy remained nevertheless for long insufficient to protect large mammal populations, including tapirs. unsatisfactory, with evident lack of ambition and means for implementation on the field for distinct reasons. Guyana and Suriname have faced decades of politic, economic and social difficulties, relaying biodiversity conservation at lower priority levels.

In contrast, French Guiana has a high economic level. But due to its status as a French administrative unit, many judiciary decrees related to nature conservancy remain either inappropriate for application on the territory, or legally inapplicable. Also, divergent ambitions between local (i.e., French Guianan) authorities and national (i.e., French) government agencies complicate the political implementation of a conservation vision for the country. Two major milestones have nevertheless been reached in 2007: the National Park, a new protected area in the south of the country, and a decree prohibiting the sale of several game species, including the Lowland tapir.

The National Park, a process initiated 15 years ago

At the Rio conference in 1992, the French president proclaimed his will to create the "Amazonian National Park" in French Guiana. Fifteen years later, the decree was signed. The road has been long until this success, and has exhausted many persons. Conflicting interests between national and local authorities, between high biodiversity value spots and gold mining lobbies (Hammond et al. 2007), and the lack of traditional communities' rights in the French laws resulted in two aborted projects before the successful one signed in February 2007. With this new protected area of 20,000 km², French Guiana presently contains a comprehensive and well configured network of protected areas. The other significant biodiversity conservation interest is entirely regional: the aggregate comprised by the Tumucumaque National Park (3,8 millions ha), the Ecological Station of Grão-Pará (4,3 millions ha) and the Maicuru Reserve (1,2 millions ha) are now under a single coordinated legal protection legislation, the responsibility of both France and Brazil. It is the largest tropical forest area in the world, with more than 12,000,000 hectares.

However, the Guianan National Park still awaits IUCN endorsement, since I-IV IUCN protected areas status is not reached with current park regulations. Indeed, all the area remains legally open to hunting practices by tribal communities, and extractive activities of natural resources are controlled by the same French decrees than outside the park. The single change brought the decree is that no species can be sold or bought within the Park. This decision was controversial, but the Park proposition contends that the rationale for both scientific monitoring and respect of aborigine livelihoods are parts of the solution for natural resource conservation in remote, inhabited Amazonian forests. An innovative concept of National Park may have thus been implemented, but important difficulties remain: intense illegal gold mining pressure on the Park territory, conflicts among communities inhabiting the Park (e.g., Bush negroes and Amerindians), recurrent denial of the Park by several local elected politicians, logistic needs to implement the regulations for the daily functioning of the park, etc.

The Decree of July 23th, 2007

In French Guiana, the legal protection of terrestrial vertebrates was restricted to a national decree signed in 1986. This decree is still in course for most species; it categorizes species with two protection levels: (i) some species are fully protected, e.g. the Giant Otter, the Spider Monkey, the Giant Armadillo; and (ii) some species are prohibited to sale and/or buy, e.g. the Capuchin Monkey, the Howler Monkey, the two Brocket Deers (we have *M. gouazoubira* and *M. americana*). Consequently, species not listed, including the tapir, were not protected and could then be killed and commercialized. In 1995 the government established by decree a "positive list" of species that could be regularly commercialized: the tapir was included in this decree.

In 2002, the "National Action Plan for the Management of Fauna and is Habitats" was implemented under the responsibility of the Ministry of Environment. The key idea of this initiative was to bring together managers, scientists, NGOs, communi-

ties representatives, and social work professionals to initiate discussions on the status of fauna and to reach consensus recommendations for its conservation. Improvements of existing laws was one goal, but not the exclusive points to deal with. During four years, public-open working groups included several topics: awareness and education, hunting practices and regulation, forest management, non extractive uses of forest (e.g., tourism), etc. After hundreds hours of discussions, often getting lively since conflicting points of view were addressed, some consensus points were reached. The necessity to retrieve the tapir and three frugivorous birds (*Psophia crepitans*, *Crax alector* and *Penelope marail*) from the list of commercial species was one of those points, and the first approved with a decree. Forthcoming working groups cessions will be focused on hunting periods, quotas, and other management details. Indeed, the status of many sensitive species remains precarious: despite the National Park, only 3% of the territory is under strong protection, where hunting is totally prohibited. Elsewhere, subsistance hunting is allowed, and several species are under a strong risk of overharvesting (e.g., monkeys and tapirs, de Thoisy & Vogel 2002; de Thoisy et al. 2005).

The weakness of the legal status of the tapir in French Guiana was highlighted during the TSG meeting at Sorocaba, 2007 (Working group "Human conflicts", objective 2, action 2.2). The involvement of, and implications for many Guianan peoples has to be acknowledged for this first but indispensable review step for large vertebrate conservation in French Guiana.

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New Fossil Discoveries and the History of *Tapirus*

By Matthew Colbert

Fossil tapirs tell a fascinating tale of intercontinental dispersal, extinction, and evolution. While their current geographic range is confined to Southeast Asia, South America, and Central America, fossil tapirs prove that as recently as a few thousand years ago they ranged across North America, Europe, and Asia. Fossil evidence also suggests that tapirs were not present in South America until at most a few million years ago.

But how did this geographic pattern emerge? And what is the relationship of these ancient tapirs to living species? Recent discoveries of fossil tapirs in South and North America, and an improved understanding of their evolutionary relationships, have started to shed some light on these questions. Here I briefly review some of these new discoveries of fossil *Tapirus*, and discuss some of the outstanding issues related to the evolution of *Tapirus*.

In North America, major fossil discoveries of tapirs have recently been reported from the southeastern United States. These studies have shown the existence of new species of *Tapirus*, and have also provided material for a much more thorough documentation of formerly poorly known species. Most of the description and interpretation of these has been the work of paleontologist Richard Hulbert from the Florida Museum of Natural History.

Hulbert's work suggests that there were at least six extinct species of *Tapirus* from the late Miocene to

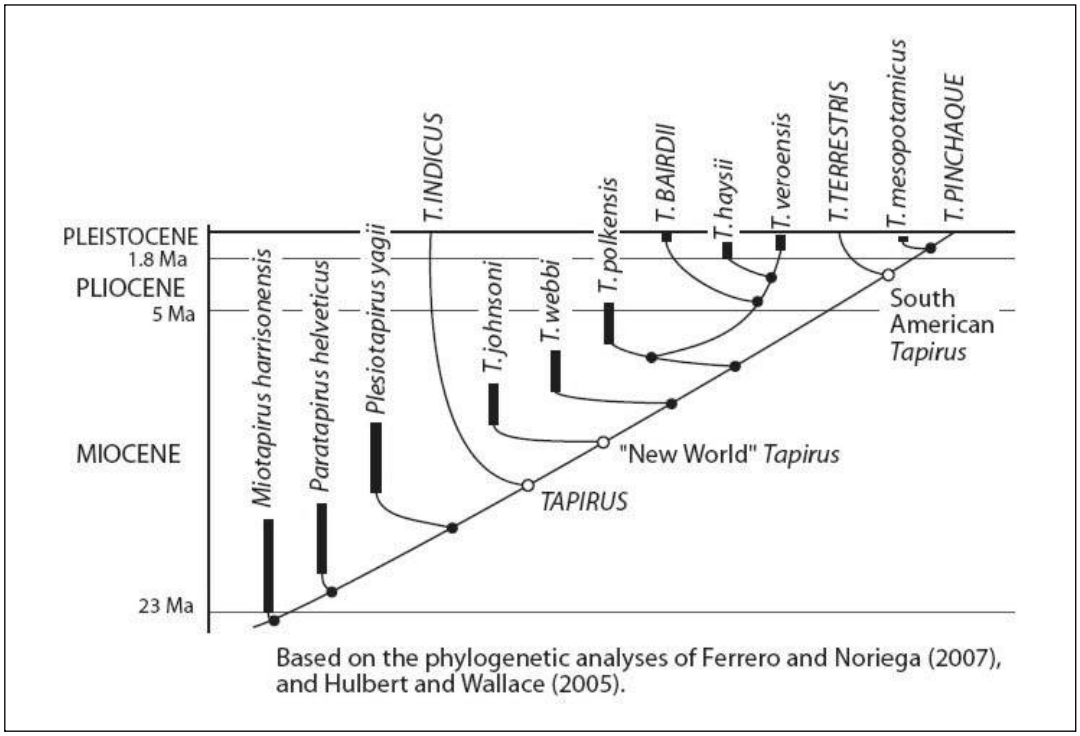

Figure 1. The South American tapirs define a monophyletic cluster.

Pleistocene of the eastern United States (about 9.5 million years ago to about 10,000 years ago). This tally does not include several fossil species that had been named based on material that was not diagnostic (in other words, the identification cannot be conclusive), or that have been synonymized with other species (the same is true for the extant tapir species!). Additionally there are a couple named species from the western United States that are in need of taxonomic revision, and that may actually pertain to earlier named eastern species.

One of the newly-described species is *Tapirus webbi*, from the late Miocene (about 9.5 to 7.5 million years ago) of Florida (Hulbert 2005). This tapir was about the size of the living *T. terrestris*, but with longer legs, and is also characterized by having several primitive features for *Tapirus*. Most importantly the appearance of *T. webbi* signals a period of time in which tapirs seem to have been diversifying in North America, following an earlier period in which they are extremely rare.

This diversification is exemplified recent discoveries of a small-bodied tapir called *Tapirus polkensis*, from the early Pliocene (7 to 4.5 million years old) Gray Fossil Site in eastern Tennessee. This tremendous site has yielded abundant remains of *Tapirus polkensis*, as well as many other fossil vertebrates. The tapirs there are currently being studied by Steve Wallace and Richard Hulbert, and have already provided data for preliminary phylogenetic analyses and an improved understanding the evolutionary relationships among the species of *Tapirus*. More about this below.

Recent reports of late Pleistocene fossil tapirs have also come from South America. These include several isolated jaw bones from southwestern Amazonia, Brazil (Hollanda and Cozzuol, 2006), and the skull of a new species from the Entre Rios Province of Argentina (Ferrero and Noriega, 2007). Although the Brazilian sample is small, and is not diagnostic to the species level, the fossils document two markedly different size classes that suggest the presence of at least two fossil species at that time (as there are today in South America - notably, these two fossil forms are both lowland species). Note, while several species of fossil tapirs have been named from South America, they are all based on scanty material, and are probably not diagnostic (as is the case with several fossil species from North America).

The skull from Argentina, however, is relatively complete, and was placed into a new species, *T. mesopotamicus* by Ferrero and Noriega (2007). Ferrero and Noriega also performed a phylogenetic analysis, which indicated to them that their new species is more closely related to *T. pinchaque* than to *T. terrestris* (see Figure 1). Although I am not entirely convinced of this relationship, it is clear that *T. mesopotamicus* is closely related to, or belongs to, a group that includes both *T. terrestris* and *T. pinchaque*. The results are also consistent with an earlier molecular analysis of mitochondrial DNA that independently supports a close relationship between *T. pinchaque* and *T. terrestris* (Ashley et al., 1996). Ferrero and Noriega's work builds on the preliminary analysis of Hulbert and Wallace (2005) that incorporates the new Gray Fossil Site tapirs.

The close evolutionary relationship between the two living South American tapirs and *T. mesopotamicus* is also concordant with the geologically relatively recent appearance of tapirs in South America. Available evidence suggests that tapirs, together with many other North American biotic elements, dispersed to South

America from North America when the Isthmus of Panama emerged from the sea about 3 million years ago (of course, there were also South American biota that dispersed northwards). Furthermore, the close relationship between the South American tapirs is also consistent with a hypothesis that they arose from a single dispersal event that sent the ancestor of these two over the Panamanian Isthmus. This hypothesis will be tested with future fossil discoveries, and with additional phylogenetic analyses.

But how are the South American tapirs related to *T. bairdii* (Baird's tapir), and to other fossil North American *Tapirus*? And how are all these New World tapirs related to *T. indicus* (the Malayan Tapir), and all the fossils from Europe and Asia? The recent analyses of Hulbert and Wallace (2005), and Ferrero and Noriega (2007), as well as the earlier molecular analysis of Ashley et al (1996) have greatly improved our understanding of these evolutionary relationships within *Tapirus*, and have begun to shed some light on these questions.

Before proceeding, I would like to present definitions for the name *Tapirus* and for the word tapir. *Tapirus* is here considered to comprise all of the descendents of the most recent common ancestor of the four living species (see Colbert, 2005). Thus, by definition, all living tapir species belong to the genus *Tapirus*. Note that this differs from a definition presented by Hulbert (2005), and although I would love to debate the merits of the different definitions here, it would be extremely boring to most of you. Please email me if you really interested (colbert@mail.utexas.edu). The informal name 'tapir' is here used to refer to a more general group consisting of all species closer to *Tapirus* than to the rhinoceroses. In addition to *Tapirus*, tapirs also include a number of extinct genera (such as *Paratapirus*, *Plesiotapirus*, and *Miotapirus*, shown in Figure 1).

The South American tapirs define a monophyletic cluster (that is, a group having a single common ancestral species) in the phylogenies of both Hulbert and Wallace (2005), and Ferrero and Noriega (2007; and see Figure 1). The Central American *T. bairdii*, however, is more closely related to *T. polkensis* and to other Pleistocene North American tapirs. The earliest divergence of the "New World" *Tapirus* is *T. johnsoni* which is from the Miocene of the state of Nebraska in the United States (about 11 to 9 million years ago).

Tapirus indicus is shown here (Figure 1) as the sister to all the "New World" tapirs, which are resolved as a monophyletic group. This result implies a scenario involving a single dispersal event between the Old and the New World. Indeed because *Plesiotapirus* and *Paratapirus* are from China and Europe, respectively, this dispersal event would parsimoniously be considered to have been from the Old to the New World. *Miotapirus* is from North America, and implies yet another (earlier) intercontinental dispersal. In other words, there was a dispersal of *Miotapirus* (or a related species) from North America to Europe and Asia giving origin to *Paratapirus* and *Plesiotapirus*, and then a dispersal of a derived Asian species back to North America that gave rise to both *T. indicus* and all extant forms in the Americas.

These dispersal scenarios are dependent upon the tree topology shown in Figure 1. But while the analyses represent a great start, they are still far from complete. They do not include any fossil species of *Tapirus* from Asia and Europe, and would benefit from the inclusion of species from other genera of fossil tapirs. Indeed, a global analysis comprising all known species of tapirs (including fossil species outside of *Tapirus*) is the ultimate goal for interpreting tapir evolution. Such an analysis would test these results reviewed here, allow a greater appreciation of rates and modes of morphological change, and a refined scenario of dispersal and evolutionary radiation. The exciting thing is that the rate of discovery of fossil species is increasing, and the pieces are being put in place for undertaking such a global analysis.

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CONTRIBUTED PAPERS

Análisis de la Microbiota Bacteriana, Aislada en Heces de *Tapirus bairdii*, de la Sierra Madre de Chiapas, México

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Abstract

Feces of 20 *Tapirus bairdii* were collected from two areas (La Sepultura and El Triunfo) in the Biosphere Reserve of the Sierra Madre de Chiapas, and examined with microbiological techniques (System API BioMeriux). In the tapir's samples we detected bacteria of the families Enterobacteriaceae, Aeromonadaceae, Micrococcaceae and others. We found *Aeromonas hydrophila, Alcaligenes sp. Acinetobacter sp., Citrobacter sp. Citrobacter braakii, Citrobacter freundii, Enterobacter aerogenes, Enterobacter amnigenus, Enterobacter cloacae, Escherichia coli, Klebsiella oxitoca, Klebsiella planticola, Klebsiella pneumoniae, Kluyvera sp., Proteus mirabilis, Proteus penneri, Serratia marscencens, Serratia odorifera, Micrococcus sp., Staphylococcus sp. Staphylococcus lentus*. These species constitute new records for Baird´s tapir intestinal microbiota.

Introducción

Se esta efectuando un estudio formal para conocer los aspectos ecológicos, biológicos, biomédicos y de sanidad en *Tapirus bairdii*, lo que permite aportar conocimientos importantes para el diseño de una estrategia de conservación ex-situ en México. Esta información permitirá identificar la microbiota normal, los posibles agentes etiológicos potencialmente productores de enfermedades, sus efectos patogénicos y factores de riesgo epidemiológicos, con lo cual se podrá establecer e implementar medidas terapéuticas y/o de control y prevención de enfermedades, con especial énfasis en poblaciones silvestres y en cautiverio en el estado de Chiapas.

Materiales y Métodos

El material estudiado proviene de 20 excretas recién defecadas de *Tapirus bairdii*, y recolectadas del suelo durante el seguimiento de los animales avistados. Las excretas que se toman en cuenta para este estudio presentan características muy particulares desde el olor, color, textura y además algo importante que hemos documentado es que los excrementos frescos de tapir en un tiempo promedio de tres horas son "atacados" por los escarabajos peloteros Coleoptera Scarabaeidae, por lo que podemos asegurarnos de el tiempo aproximado de haber sido excretados por los animales.

El trabajo se realizó en las zonas núcleo de las Reservas de la Biosfera "La Sepultura" (Polígono "La Palmita) y "El Triunfo" (Polígono I) ubicadas entre 16º 21' 56" y 16º 20' 18" de latitud norte, y 93º 58' 31" y 93º 53' 10" longitud oeste en la Sierra Madre de Chiapas; durante el periodo de 2002 al 2005 figura 1.

Las excretas recolectadas se transportaron y procesaron en un laboratorio móvil dentro de las Reservas de la Biosfera, implementado para desarrollar los procesos de siembra y primoaislamiento de bacterias, bajo las mayores condiciones de asepsia y bioseguridad (Güiris y Cruz, 2002). Los medios de cultivo empleados para el aislamiento bacteriano de la enterobacteria se seleccionaron de acuerdo a los criterios descritos por Konemam et al. (2001), Agar MacConkey, Agar Azul de Metileno Eosina, Agar Salmonella Shigella,

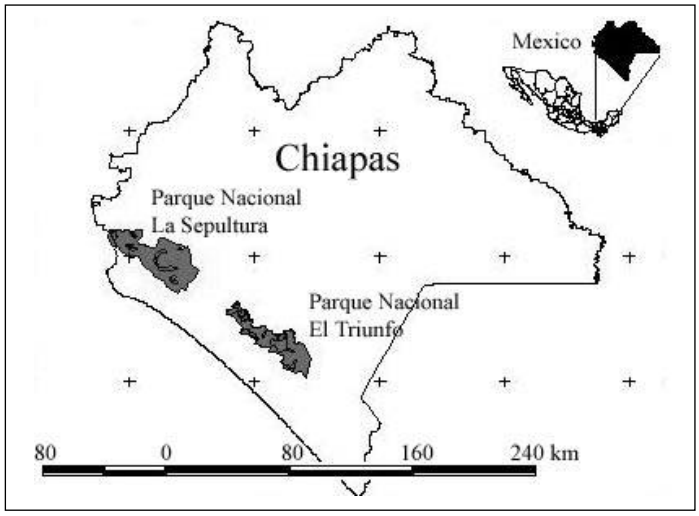

Figura 1. El trabajo se realizó en las zonas núcleo de las Reservas de la Biosfera "La Sepultura" y "El Triunfo".

Agar Sangre, Caldo Verde Brillante (BD Bioxon). Los medios de cultivo se inocularon con un asa bacteriológica, dentro de un campo estéril, realizándose la siembra por medio de estrías de superficie en cada una de las placas. Estos fueron incubados a 37° Celsius en aerobiosis durante 24 a 72 hrs. Se seleccionaron colonias para verificar su taxonomía de acuerdo con lo descrito por Staley y Krieg (1984) para la caracterización morfológica colonial, propiedades tintoriales (Gram), morfología y agrupación bacteriana microscópica, pruebas de identificación taxonómica para la evaluación del metabolismo bacteriano mediante las reacciones de un sustrato bioquímico (sistema API 20 E, API Staph, API 20 NE) y de oxidación y fermentación de carbohidratos con las cepas aisladas (BioMeriux s/a; Macfaddin, 1990; Güiris 2003). La identificación bacteriana, dependiendo de las reacciones observadas en las pruebas bioquímicas (positivas o negativas), se basó en la identificación numérica del perfil observado de cada microposo de los diferentes sustratos bioquímicos,apoyándose en el cálculo de su proximidad relativa a los distintos taxones de la base de datos (% id), así como a su proximidad al perfil más típico de cada taxón (índice T). Dichos cálculos fueron analizados a través del programa APILAB PLUS Versión 2007 (bioMérieux). El Método de cuantificación de Unidades Formadoras de Colonias (UFC) empleado es el descrito por Seeley et al. (1991).

Resultados

De acuerdo a los aislamientos bacterianos de coprocultivos en Tapir Centroamericano, denotaron una frecuencia y distribución proporcional de 262 (100%) cepas aisladas. La proporción de aislamientos en Grupo bacteriano o Familias se distribuyó como sigue: Aeromonadaceae con la menor proporción de aislamientos 4.96%, Bacilos Gram Negativos No Fermentadores (BGNNF) con el 11.83%, Enterobacteriaceae con la mayor proporción de aislamientos 75.19% y Micrococcaceae con el 8.01%. Con respecto a la identificación de cepas bacterianas, se identificaron las siguientes especies: *Aeromonas hydrophila, Alcaligenes sp. Acinetobacter sp., Citrobacter sp. Citrobacter braakii, Citrobacter freundii, Enterobacter aerogenes, Enterobacter amnigenus, Enterobacter cloacae, Escherichia coli, Klebsiella oxitoca, Klebsiella planticola, Klebsiella pneumoniae, Kluyvera sp., Proteus mirabilis, Proteus penneri, Serratia marscencens, Serratia odorifera, Micrococcus sp., Staphylococcus sp. Staphylococcus lentus* (Tabla 1).

En cuanto a la cuantificación de bacterias por gramo de heces, se observó un promedio ± desviación estándar (valor mínimo valor máximo) de 7.900.000 ± 1.6 (6.300.000 – 9.600.000) Unidades Formadoras de colonias (UFC) en época de secas y 86.000.000 ± 4.0 (82.000.000. – 90.000.000) UFC en época de lluvias.

Discusion

Los aislamientos bacterianos de heces de *Tapirus bairdii* silvestre de las Reservas de la Biosfera en la Sierra Madre de Chiapas fue predominante para cepas bacterianas de la familia Enterobacteriaceae en comparación a las familias Aeromonadaceae, Micrococcaceae y el Grupo Bacteriano de BGNNF. Estos resultados concuerdan con Jawetz (1990), quien reporta que algunos autores mencionan ciertos tipos de bacterias de la familia Enterobacteriaceae, que llegan a ser habitantes normales de la flora intestinal, donde no producen generalmente enfermedades e incluso contribuyen a la función y la nutrición normal y que ciertos géneros llegan a volverse patógenos, solo cuando colonizan los tejidos que están fuera del tubo intestinal, en particular las vías urinarias y biliares, los pulmones, el peritoneo y las meninges, causando inflamación de estos sitios.

Nuestros aislamientos bacterianos en Tapir Centroamericano concuerdan con trabajos realizados por diferentes autores en el orden Perissodactyla: Göltenboth et al. (1996), reporta el aislamiento de *Escherichia coli* en el Tapir de la India (*Tapirus indicus*), el mismo autor reporta también el aislamiento de la misma bacteria en hígado, bazo, e intestino de Rinoceronte Negro (*Diceros bicornis*), los cuales se encuentran filogenéticamente relacionados con el Tapir y los Équidos. Güiris et al. (2001) aislaron *Escherichia coli* de intestino (ciego, colon y recto) de dos *Tapirus bairdii* con enterotoxemia del Zoológico Regional

Tabla 1. Distribución proporcional de la frecuencia de aislamientos bacterianos a partir de coprocultivos en Tapir Centroamericano de las Reservas de la Biosfera "El Triunfo" y "La Sepultura" en la Sierra Madre de Chiapas.

Familia / Grupo	Bacteria	% Familia / Grupo	No. Cepas	%
Aeromonadaceae	*Aeromonas hydrophila*	4.96	13	4.96
BGNNF	*Alcaligenes* sp.	11.83	14	5.34
	Acinetobacter sp.		17	6.48
Enterobacteriaceae	*Citrobacter* sp.	75.19	3	1.14
	Citrobacter braakii		12	4.58
	Citrobacter freundii		13	4.96
	Enterobacter aerogenes		5	1.90
	Enterobacter amnigenus		5	1.90
	Enterobacter cloacae		4	1.52
	Escherichia coli		83	31.67
	Klebsiella oxitoca		10	3.81
	Klebsiella planticola		14	5.34
	Klebsiella pneumoniae		8	3.05
	Kluyvera sp.		10	3.81
	Proteus mirabilis		7	2.67
	Proteus penneri		5	1.90
	Serratia marcencens		7	2.67
	Serratia odorifera 1		11	4.19
Micrococcaceae	*Micrococcus* sp.	8.01	7	2.67
	Staphylococcus sp.		10	3.81
	Staphylococcus lentus		4	1.52
		100%	262	100.00

Miguel Álvarez del Toro, en Tuxtla Gutiérrez, Chiapas, México. En un estudio de caso de Bronconeumonía en *Tapirus bairdii* del estado de Chiapas, al realizar aislamientos de vías respiratorias y digestivas, Güiris et al. (2002) reportan: *Enterococcus faecalis*, un estreptococo intestinal aislado en faringe, *Escherichia coli* y *Citrobacter freundii* aislado de intestino, lo que sugiere que una bacteria (*Enterococcus sp.*) de la microbiota intestinal de caballo o tapir puede actuar como un patógeno potencial en vías respiratorias. Por otra parte, Carter y Chengappa (1991) reportan aislamientos de *Escherichia coli* en Caballo. Pérez (2005) también encontró *Escherichia coli, Klebsiella pneumoniae, Enterobacter cloacae* y *Kluyvera sp*. en tapir, caballo y mula, aparentemente sanos. Esto sugiere que dichas bacterias forman parte de la microbiota residente del intestino de estos Perisodáctilos. Con respecto a *Alcaligenes sp*. y *Klebsiella planticola*, aislados en excretas de tapir, pueden estas bacterias estar supeditadas posiblemente a los hábitos alimentarios del tapir, dado que esta bacteria se encuentra en suelo o plantas (Koneman et al. 2001). La mayor frecuencia de aislamientos bacterianos en Tapir fue para la especie *Escherichia coli* en un 31.67%. cifra que concuerda con lo encontrado por Güiris et al. 2001. que reportan un 57.0% de aislamientos de la especie en tracto digestivo de tapires en el Zoológico Miguel Álvarez del Toro en Tuxtla Gutiérrez, Chiapas.

El grupo Serratia liquefaciens es clasificada no como una especie única, sino como una colección de muchos grupos de hibridación de DNA bacterianos, la cual se aísla del ambiente y de humanos (Konemam et al. 2001).

En la presente investigación se identificaron las siguientes especies: *Escherichia coli, Kluyvera sp*., grupo Serratia liquefaciens, *Citrobacter koseri, Pantoea agglomerans, Proteus vulgaris* y *Acinetobacter sp*. Dicho resultado concuerda con lo descrito por Koneman et al. (2001) en donde cita que *Escherichia coli* es uno de los aislamientos bacterianos más comúnmente realizados en el laboratorio de muestras de tracto gastrointestinal. Por otra parte *Kluyvera sp*. es raramente identificada en muestras de heces de humanos (Koneman et al. 2001). En tanto que el aislamiento de Pantoea agglomerans concuerda con lo descrito por Koneman et al. (2001), en donde citan que esta especie bacteriana ha sido aislada de fuentes biofísicas diversas (plantas, animales, humanos, agua) y de heridas, sangre, orina y órganos internos. Mientras que *Proteus vulgaris*, se encuentra en aislamientos recuperados con más frecuencia de muestras clínicas y son distribuidos en la naturaleza en forma amplia, estos microorganismos se encuentran en el suelo y el agua, sobre las plantas y como lo indica el nombre de la familia, dentro del tracto intestinal de los seres humanos y animales. Es parte de la microbiota intestinal de mamíferos, y ha sido recuperado con mayor frecuencia en huéspedes inmunosuprimidos, en particular aquellos que han recibido tratamientos prolongados con antibióticos (Konemam

et al. 2001), lo cual concuerda con lo descrito por Jawets et al. (1990), quien también menciona que esta especie produce infecciones sólo cuando abandona el tubo intestinal. Referente a los aislamientos bacterianos de *Citrobacter koseri* realizados, Koneman et al. (2001) menciona que pueden encontrarse en orina, nariz, esputo y heridas, causa rara de meningitis y abscesos cerebrales en neonatos y han sido obtenidos predominantemente de materia fecal.

En cuanto al aislamiento de *Acinetobacter sp*. Koneman et al. (2001), reporta el aislamiento de esta especie bacteriana en infecciones de heridas de piel y nosocomiales, neumonías, peritonitis, y bacteriemias en humanos. La frecuencia de aislamientos bacterianos en heces fueron altos en *Tapirus bairdii*, lo cual puede ser debido al habito alimentario (dieta variada y rica en fibra de tallos y hojas) que quizás no sea muy fermentable. Esto difiere de lo descrito por Hojberg et al. (2003) en un estudio sobre la capacidad catabólica microbiana gastrointestinal de cerdos con dietas fermentables líquidas o fibrosas secas, quienes observaron una disminución de la población microbiana (microbiota residente) probablemente por el efecto bactericida del ácido láctico y bajo pH.

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Reportes sobre la Presencia del Tapir de Montaña (*Tapirus pinchaque*) en el Parque Nacional Llanganates, Ecuador

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En el Ecuador existen pocos estudios realizados con el tapir de montaña (Mora *et al*. 1993; Castellanos, 1994; Downer, 1996), sin embargo, los esfuerzos por obtener información sobre esta especie son cada vez más constantes. Recientemente se han conseguido valiosos registros directos de este ungulado en el Parque Nacional Llanganates (PNL), los cuales son reportados en la presente nota.

El tapir de montaña (*Tapirus pinchaque*) se distribuye desde la parte norte de Perú, la parte este y noroeste de la cordillera de los Andes del Ecuador hasta la parte occidental, este y central de los Andes Colombianos (Downer, 1997). Su hábitat son los bosques montanos y páramos que van desde los 2000 a 4000 msnm (Acosta *et al*., 1996; Downer 1996; 1997). En el Ecuador este tipo de hábitat se ha visto afectado debido al constante desarrollo de actividades antropogénicas, las cuales han ocasionado que el 64% del total de la superficie de los páramos (12500 km^2), haya sido transformada (Hofstede *et al*. 2002).

El Parque Nacional Llanganates (PNL) es una de las áreas protegidas del Ecuador que conserva, aún, lugares que no presentan alta fragmentación (Vázquez & Larrea 2000). Posee una superficie de 2.197 km^2 y se extiende entre las provincias de Cotopaxi, Tungurahua, Pastaza y Napo (Figura 1) (Castro & Román 2000). Su altitud varía desde los 2400 a 4500 msnm y presenta ocho tipos de vegetación: páramo herbáceo, páramo de almohadillas, herbazal lacustre montano alto, bosque siempreverde montano bajo, bosque siemprever-

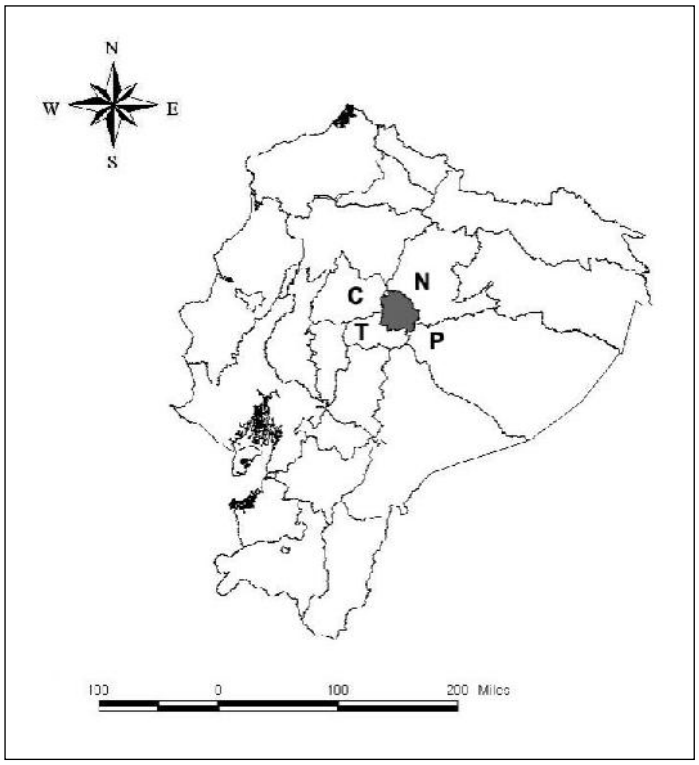

Figura 1. Ubicación del Parque Nacional Llanganates en el Ecuador. Provincias: C = Cotopaxi; T = Tungurahua; N = Napo; P = Pastaza.

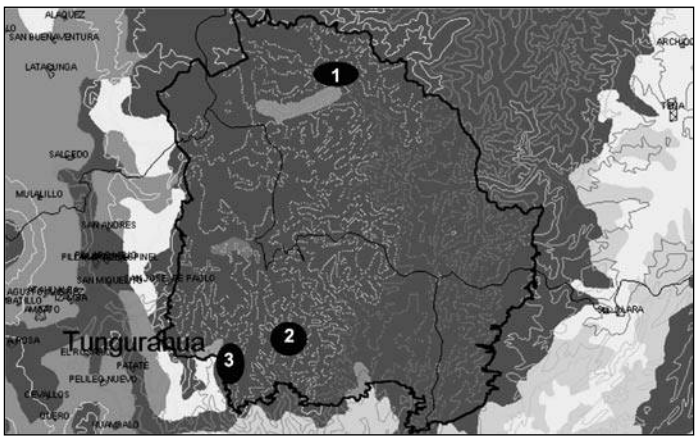

Figura 2. Parque Nacional Llanganates. Ubicación de los lugares en donde se obtuvieron los registros: 1 = Valle del río Mulatos; 2 = Páramos de Limoturo; 3 = Comunidad El Triunfo. Mapa Fuente: Ministerio del Ambiente y EcoCiencia.

Figura 3. Cría registrada en el Valle del río Mulatos.

Figura 4. Una pareja de tapires observada en el Páramo de Limoturo.

de montano alto, bosque siempreverde piemontano, bosque de neblina montano y áreas con intervención humana (Chiriboga *et al*. 2000; Vázquez & Larrea, 2000).

Durante recorridos de control y vigilancia, por los páramos del PNL, se han reportado observaciones directas de cuatro individuos en tres diferentes localidades (Figura 2): En la vía Salcedo-Tena, valle del rio mulatos, se registró una cría (Figura. 3), dos individuos en el páramo de Limoturo y un individuo juvenil fue capturado por pobladores de la comunidad El Triunfo (Figura. 4 y 5 respectivamente). Este individuo fue examinado, desparasitado por un veterinario del Ministerio y con el apoyo de la comunidad fue devuelto a su hábitat.

El PNL presenta áreas en buen estado de conservación, las mismas que podrían ser utilizadas como áreas de refugio, apareamiento y alimentación por los tapires. No obstante, es necesario realizar investigaciones que nos permitan determinar la disponibilidad de hábitat y el estado de conservación del tapir en esta área.

El Parque Nacional Llanganates conserva lugares que aún no han sido explorados, el endemismo y diversidad de su flora y fauna son altos y la función que cumplen sus bosques y páramos en la captación y regulación del recurso agua hacen que este parque se convierta en un área prioritaria para la investigación y conservación de toda su biodiversidad.

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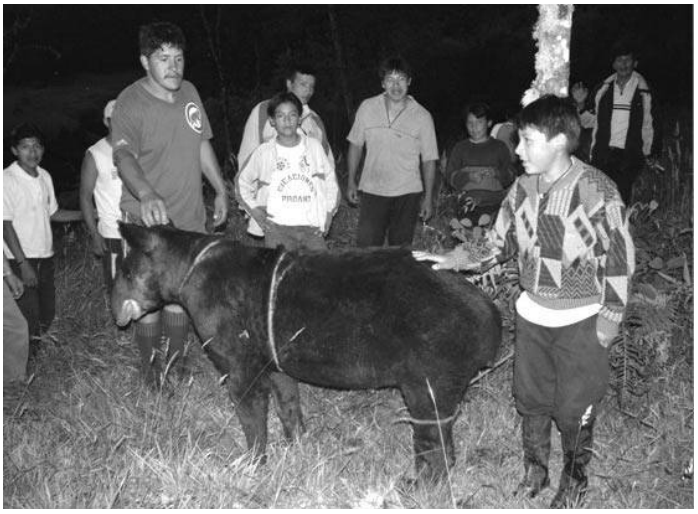

Figura 5. Tapir capturado en la comunidad El Triunfo.

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NEWS IN BRIEF

Patrícia Medici one of the Winners of the Golden Ark Award 2008

By Stefan Seitz

On the verge of printing this issue, a very pleasant announcement reached the editors that should be shared with the entire tapir community.

Patrícia Medici, Coordinator of the Lowland Tapir Conservation Initiative (LTCI) in Brazil and Chair of the IUCN/SSC Tapir Specialist Group (CBSG) is one of the three winners of the Golden Ark Award from the Golden Ark Foundation in the Netherlands. Patrícia will receive this award for her long-term contributions to lowland tapir research and conservation in Brazil, as well as for her work as chair of the TSG.

The goal of the Golden Ark Foundation is to promote the conservation of species of wild animals and plants. In pursuit of this goal, the Foundation has established the Golden Ark Award, a prestigious conservation award, which rewards and funds individuals for their internationally outstanding species conservation efforts. The Golden Ark Award honors creativity, leadership, innovation and entrepreneurship in the field of species conservation, and aims to stimulate award winners to sustain their dedicated work.

In September 2007, 69 conservationists from 40 different countries worldwide were nominated for the Golden Ark Award. Patrícia Medici was nominated by the Dutch Foundation Zoos Help of the Dutch Federation of Zoos, a long-term supporter of Patrícia's tapir conservation efforts in Brazil. Ten of the nominees were short-listed for the second phase of the selection process, and three of them were selected as the winners of the award.

The other two winners of the Golden Ark Award 2008 were Charudutt Mishra from India, who works on Himalayan wildlife, with a strong focus on the snow leopard, and Michiel Hötte from the Netherlands, a pioneer in Amur leopard conservation in Russia. Award winners will receive Euro 50.000 as a contribution to their conservation work. Patrícia, Charudutt, and Michiel will be the definite winners of the Golden Ark Award when they receive it during the Golden Ark Conference at Burgers' Zoo in Arnhem, the Netherlands, on the 14th of March, 2008.

In the next issue of *Tapir Conservation* we will report about the award ceremony and dwell into Pati's biography and conservation projects. Further information about the Golden Ark Foundation and Golden Ark Award can be found at: www.goldenarkaward.org.

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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 5,000 words (all text included). In any case, an English abstract up to 250 words 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).

References
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. Tropicale 8:31-37.

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Janssen, D.L., Rideout, B.A. & Edwards, M.S. 1999. Tapir Medicine. In: M.E. Fowler & R. E. Miller (eds.) Zoo and Wild Animal Medicine, pp.562-568. W.B. Saunders Co., Philadelphia, USA.

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Brooks, D.M., Bodmer, R.E. & Matola, S. 1997. Tapirs: Status, Survey and Conservation Action Plan. IUCN, Gland, Switzerland.

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Foerster. C.R. 1998. Ambito de Hogar, Patron de Movimentso y Dieta de la Danta Centroamericana (*Tapirus bairdii*) en el Parque Nacional Corcovado, Costa Rica. M.S. thesis. Universidad Nacional, Heredia, Costa Rica.

Report
Santiapilli, C. & Ramono, W.S. 1989. The Status and Conservation of the Malayan tapir (*Tapirus indicus*) in Sumatra, Indonesia. Unpublished Report, Worldwide Fund for Nature, Bogor, Indonesia.

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Tapir Conservation

The Newsletter of the IUCN/SSC Tapir Specialist Group

Volume 16/2 ■ No. 22 ■ **December 2007**

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