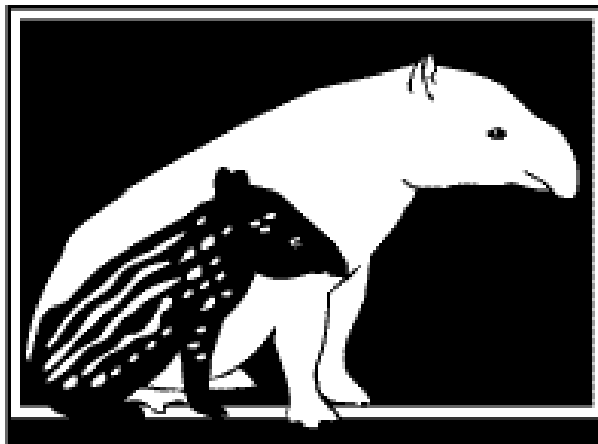


Third International Tapir Symposium

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

TAPIR SYMPOSIUM



BOOK OF ABSTRACTS

ORGANIZERS

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

PLANNING COMMITTEE

Patrícia Medici

Conservation Biologist, IPÊ - Institute for Ecological Research, Brazil
Chair, IUCN/SSC Tapir Specialist Group (TSG)

Alberto Mendoza

Coordinator of Latin American Programs, Houston Zoo Inc., United States
Member, IUCN/SSC Tapir Specialist Group (TSG)

Kelly Russo

Conservation Assistant, Houston Zoo Inc., United States
Coordinator, Education & Outreach Committee, IUCN/SSC Tapir Specialist Group (TSG)

Viviana B. Quse

Senior Veterinarian, Fundación Temaikén, Argentina
Coordinator, Lowland Tapir, IUCN/SSC Tapir Specialist Group (TSG)

Guillermo Rutti

Jefe Comercial, Fundación Temaikén, Argentina

Rick Barongi

Director, Houston Zoo Inc., United States
Member, American Zoo and Aquarium Association (AZA) Tapir Taxon Advisory Group (TAG)
Member, IUCN/SSC Tapir Specialist Group (TSG)

William B. Konstant

Director of Conservation and Science, Houston Zoo Inc., United States
Deputy-Chair, IUCN/SSC Tapir Specialist Group (TSG)

Alan Shoemaker

Red List Authority, IUCN/SSC Tapir Specialist Group (TSG)
Permit Advisor, American Zoo & Aquarium Association (AZA) Tapir Taxon Advisory Group (TAG)

Lewis Greene

Director, Virginia Zoological Gardens, United States
Chair, American Zoo & Aquarium Association (AZA) Tapir Taxon Advisory Group (TAG)

Bengt Holst

Director of Conservation and Science, Copenhagen Zoo, Denmark
Chair, European Association of Zoos and Aquaria (EAZA) Tapir Taxon Advisory Group (TAG)

INSTITUTIONAL SUPPORT

American Zoo and Aquarium Association (AZA) Tapir Taxon Advisory Group (TAG)
European Association of Zoos and Aquaria (EAZA) Tapir Taxon Advisory Group (TAG)
Fundación Temaikén, Argentina
Houston Zoo Inc., United States
IPÊ - Institute for Ecological Research, Brazil
IUCN/SSC Conservation Breeding Specialist Group (CBSG)

FINANCIAL SUPPORT

Albuquerque Zoo, United States
Alexandria Zoological Park, United States
American Association of Zoo Keepers (AAZK) New England Chapter, United States
American Association of Zoo Keepers (AAZK) Houston Chapter, United States
American Association of Zoo Keepers (AAZK), Central Illinois Chapter, United States
Brevard Zoo, United States
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
Connecticut's Beardsley Zoo Conservation Fund, United States
Continental Airlines, United States
Copenhagen Zoo, Denmark
Cotswold Wildlife Park, United Kingdom
Denver Zoological Foundation, United States
Department of Wildlife and National Parks, Malaysia
Disney Wildlife Conservation Fund, United States
El Colegio de la Frontera Sur (ECOSUR), Mexico
El Nispero Zoo, Republic of Panama
Fundación Temaikén, Argentina
Henry Vilas Zoo, United States
Houston Zoo Inc., United States
Instituto de Historia Natural y Ecología (IHNE), Mexico
Instituto de Investigación en Recursos Biológicos "Alexander von Humboldt", Colombia
IPÊ - Instituto de Pesquisas Ecológicas, Brazil
Jackson Zoological Park, United States
Jacksonville Zoo and Gardens, United States
Kyiv Zoo, Ukraine

León Zoo, Mexico
Lisieux CERZA, France
Los Angeles Zoo, United States
Louisiana Purchase Gardens & Zoo, United States
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
San Francisco Zoo, United States
Santa Ana Zoo, United States
Sedgwick County Zoo, United States
Singapore Zoological Gardens, Singapore
TSG Conservation Fund (TSGCF)
Ueno & Tama Zoological Gardens, Tokyo Zoo Conservation Fund, Japan
Universidad Nacional de Colombia (UNAL), Colombia
Universidad de San Carlos de Guatemala, Guatemala
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

DETAILED PROGRAM

Thursday, January 26

- 09:00-18:00 **ARRIVAL AND REGISTRATION** (HOTEL Sheraton-Libertador)
19:00-22:00 **ICEBREAKER** (HOTEL Sheraton-Libertador)

Friday, January 27

- 08:00-09:00 Transportation to TEMAIKÉN - Registration
- 09:00-10:00 **OPENING CEREMONY**
Gabriel Aguado
Fundación TEMAIKÉN, Argentina
Patricia Medici
Chair, IUCN/SSC Tapir Specialist Group (TSG)
- 10:00-11:00 **KEYNOTE SPEAKER: The PHVA Process: What it Means for Tapirs (E)**
Alan Shoemaker
Red List Authority, IUCN/SSC Tapir Specialist Group (TSG)
Permit Advisor, American Zoo and Aquarium Association (AZA) Tapir Taxon Advisory Group (TAG)
- 11:00-11:30 **COFFEE BREAK**
- 11:30-12:50 **PAPER SESSION 1: Malayan Tapir (*Tapirus indicus*)**
Session Chair: Bengt Holst
- 11:30-11:50 **Malayan Tapir Monitoring through the use of the Camera Trapping Methodology (E)**
Wilson Novarino
FMIPA Universitas Andalas, Indonesia
Country Coordinator, Indonesia, IUCN/SSC Tapir Specialist Group (TSG)
- 11:50-12:10 **A Radio-Telemetry Study of Malayan Tapirs, *Tapirus indicus*, in Krau Wildlife Reserve, Malaysia (E)**
Carl Traeholt
Malayan Tapir Project, Krau Wildlife Reserve, Copenhagen Zoo, Malaysia
Species Coordinator, Malayan Tapir, IUCN/SSC Tapir Specialist Group (TSG)
- 12:10-12:30 **Using Camera Trapping to Determine Dispersal Range of Malayan Tapirs, *Tapirus indicus*, in Krau Wildlife Reserve, Malaysia (E)**
Carl Traeholt
Malayan Tapir Project, Krau Wildlife Reserve, Copenhagen Zoo, Malaysia
Species Coordinator, Malayan Tapir, IUCN/SSC Tapir Specialist Group (TSG)
- 12:30-12:50 ***Ex-situ* Conservation of Malayan Tapir (*Tapirus indicus*) in Peninsular Malaysia (E)**
Zainal-Zahari
Department of Wildlife and National Parks, Malaysia
- 12:50-14:00 **LUNCH** (TEMAIKÉN Restaurant)

- 14:00-15:00 **PAPER SESSION 2: Baird's Tapir (*Tapirus bairdii*)**
Session Chair: Siân S. Waters
- 14:00-14:20 **Characterization of Baird's Tapir (*Tapirus bairdii*) Diet and Habitat in Riparian Ecosystems within the Laguna Lachuá National Park, Cobán, Alta Verapaz, Guatemala (S)**
Manolo García
Universidad de San Carlos de Guatemala, Guatemala
- 14:20-14:40 **How Many Tapirs Occur in Mexico?: Estimating Numbers from Available Field Data (S)**
Eduardo J. Naranjo Piñera
El Colegio de la Frontera Sur (ECOSUR), Mexico
Species Coordinator, Baird's Tapir, IUCN/SSC Tapir Specialist Group (TSG)
- 14:40-15:00 **Status and Conservation of Baird's Tapir in Oaxaca, Mexico (S)**
Iván Lira-Torres
DVM, Universidad del Mar - Campus Puerto Escondido, Mexico
Member, IUCN/SSC Tapir Specialist Group (TSG)
- 15:00-16:00 **PAPER SESSION 3: Mountain Tapir (*Tapirus pinchaque*)**
Session Chair: Olga Lucía Montenegro
- 15:00-15:20 **Mountain Tapir (*Tapirus pinchaque*) Habitat Suitability in the Andean Region of Colombia (S)**
Carlos Alberto Pedraza Peñalosa
Universidad de los Andes (UNIANDES) & Instituto "Alexander von Humboldt", Colombia
Member, IUCN/SSC Tapir Specialist Group (TSG)
- 15:20-15:40 **Effects of Mountain Tapirs on the Forest: What's Happened After Two Years (S)**
Diego J. Lizcano
Universidad de Pamplona, Colombia & DICE University of Kent, United Kingdom
Country Coordinator, Colombia, IUCN/SSC Tapir Specialist Group (TSG)
- 15:40-16:00 **Modeling the Distribution of the Mountain Tapir (*Tapirus pinchaque*) in the Colombian Massif (S)**
Héctor Restrepo
Fundación Wii, Colombia
- 16:00-16:30 **COFFEE BREAK / POSTER SESSION**
- 16:30-18:50 **PAPER SESSION 4: Lowland Tapir (*Tapirus terrestris*)**
Session Chair: Leonardo Salas
- 16:30-16:50 **Regional Assessment of the Status of Lowland Tapirs (*Tapirus terrestris*) in the Upper Paraná Atlantic Forest Ecoregion (S)**
Agustin Paviolo
Universidad Nacional de Tucumán, Argentina
- 16:50-17:10 **Ecology of *Tapirus terrestris* in the Rainforest of Madre de Dios, Peru: Preliminary Results from a GPS Collar and Telemetry Study (E)**
Mathias Tobler
Botanical Research Institute of Texas, United States
- 17:10-17:30 **Landscape Genetics of the Lowland Tapir (*Tapirus terrestris*) in the Pontal do Paranapanema, Brazil (E)**
Anders Gonçalves da Silva
IPÊ - Institute for Ecological Research, Brazil & Columbia University, United States
Coordinator, Genetics Committee, IUCN/SSC Tapir Specialist Group (TSG)

- 17:30-17:50 **Lowland Tapirs as *Landscape Detectives* for the Atlantic Forest: An Overview of Almost a Decade of Research (E)**
Patrícia Medici
 Research Coordinator, IPÊ - Institute for Ecological Research, Brazil
 Chair, IUCN/SSC Tapir Specialist Group (TSG)
- 17:50-18:10 **Lowland Tapir Distribution Update in the Colombian Orinoquia Region (S)**
Juliana Rodríguez
 Universidad Nacional de Colombia (UNAL), Colombia
 Member, IUCN/SSC Tapir Specialist Group (TSG)
- 18:10-18:30 **Browse and Fruit as a Source of Minerals for Lowland Tapir in the Yavari-Miri Region, Peruvian Amazon (S)**
Olga Lucía Montenegro
 Universidad Nacional de Colombia (UNAL), Colombia
 Country Coordinator, Colombia, IUCN/SSC Tapir Specialist Group (TSG)
- 18:30-18:50 **Cytogenetic and Molecular Characterization of the Amazonian Tapir (*Tapirus terrestris aenygmaticus*) (S)**
Andrés Tapia Arias
 Pontifical Catholic University of Ecuador (PUCE), Ecuador
 Centro Tecnológico de Recursos Amazónicos de la Organización de Pueblos Indígenas de Pastaza
- 19:00-20:00 Transportation to HOTEL Sheraton-Libertador
- 20:00-22:00 **AUCTIONS**
Fundraising for the TSG Conservation Fund (HOTEL Sheraton-Libertador)

Saturday, January 28

- 08:00-09:00 Transportation to TEMAIKÉN
- 09:00-10:00 **KEYNOTE SPEAKER: The View of the Nassa Wesh Indigenous People about the Conservation of the Mountain Tapir in Southern Tolima, Colombia (S)**
Don Álvaro Ovidio Paya
 Gobernador, Cabildo Indígena de Gaitania, Tolima, Colombia
- 10:00-10:40 **Tapir Specialist Group Committees: REPORTS (Part A)**
Session Chair: Patrícia Medici, Brazil
- 10:00-10:20 **TSG Marketing Committee & TSG Website (E)**
Gilia Angell
 User Interface Designer, Amazon.com, United States
 Coordinator, Marketing Committee, IUCN/SSC Tapir Specialist Group (TSG)
 Webmaster, IUCN/SSC Tapir Specialist Group (TSG), www.tapirspecialistgroup.org
- 10:20-10:40 **TSG Education & Outreach Committee (E)**
Kelly Russo
 Conservation Assistant, Houston Zoo Inc., United States
 Coordinator, Education & Outreach Committee, IUCN/SSC Tapir Specialist Group (TSG)
Tapir Conservation Newsletter Editor, IUCN/SSC Tapir Specialist Group (TSG)
- 10:40-11:00 **COFFEE BREAK / POSTER SESSION**
- 11:00-12:00 **Tapir Specialist Group Committees: REPORTS (Part B)**
Session Chair: Patrícia Medici, Brazil

- 11:00-11:20 **TSG Genetics Committee (E)**
Anders Gonçalves da Silva
 IPÊ - Institute for Ecological Research, Brazil & Columbia University, United States
 Coordinator, Genetics Committee, IUCN/SSC Tapir Specialist Group (TSG)
- 11:20-11:40 **TSG Zoo Committee (E)**
Siân S. Waters
 Deputy-Chair, IUCN/SSC Tapir Specialist Group (TSG)
 Coordinator, Zoo Committee, IUCN/SSC Tapir Specialist Group (TSG)
- 11:40-12:00 **QUESTIONS & DISCUSSIONS**
- 12:00-13:00 **KEYNOTE SPEAKER: Understanding and Interpreting Tapirs in the Fossil Record (E)**
Matthew Colbert
 Research Associate, Department of Geological Sciences, University of Texas, United States
 Evolution Consultant, IUCN/SSC Tapir Specialist Group (TSG)
- 13:00-14:00 **LUNCH** (TEMAIKÉN Restaurant)
- 14:00-15:40 **WORKSHOP 1: Action Planning for Tapir Conservation (Part A)**
Organizer: Patrícia Medici, Brazil
- 14:00-14:20 **TSG Action Planning Committee: REPORT (E)**
Patrícia Medici
 Research Coordinator, IPÊ - Institute for Ecological Research, Brazil
 Chair, IUCN/SSC Tapir Specialist Group (TSG)
 Coordinator, Action Planning Committee, IUCN/SSC Tapir Specialist Group (TSG)
- 14:20-14:40 **Mountain Tapir (*Tapirus pinchaque*) Conservation Workshop: Population and Habitat Viability Assessment (PHVA) (S)**
Diego J. Lizcano
 Universidad de Pamplona, Colombia & DICE University of Kent, United Kingdom
 Country Coordinator, Colombia, IUCN/SSC Tapir Specialist Group (TSG)
- 14:40-15:00 **Baird's Tapir (*Tapirus bairdii*) Conservation Workshop: Population and Habitat Viability Assessment (PHVA) (S)**
Rocío Polanco Ochoa
 Investigadora, Línea Áreas Protegidas
 Instituto de Investigación en Recursos Biológicos "Alexander von Humboldt", Colombia
- 15:00-15:20 **A Range-Wide Status Analysis of Lowland Tapir (*Tapirus terrestris*) and White-lipped Peccary (*Tayassu pecari*): Preliminary Results for Lowland Tapirs and Conservation Implications (E)**
Andrew Taber
 Executive Vice President for Programs, Wildlife Trust, United States
 IUCN/SSC Pigs, Peccaries and Hippos Specialist Group
- 15:20-15:40 **Distribution Models and Conservation Perspectives for Lowland Tapir in Bolivia (S)**
Damian I. Rumiz
 Wildlife Conservation Society - Bolivia
 Museo de Historia Natural Noel Kempff Mercado, Santa Cruz
- 15:40-16:00 **COFFEE BREAK / POSTER SESSION**

- 16:00-19:00 **WORKSHOP 1: Action Planning for Tapir Conservation (Part B)**
REPORTS: National Action Plans for Tapir Conservation and Management
Organizer: Patrícia Medici, Brazil
- 16:00-16:15 **National Action Plan for Tapir Conservation in Argentina (Lowland Tapir) (S)**
Silvia Chalukian
Programa de Investigación y Conservación del Tapir, Noroeste de Argentina
Country Coordinator, Argentina, IUCN/SSC Tapir Specialist Group (TSG)
- 16:15-16:30 **National Action Plan for Tapir Conservation in Brazil (Lowland Tapir) (E)**
Patrícia Medici
Research Coordinator, IPÊ - Institute for Ecological Research, Brazil
Chair, IUCN/SSC Tapir Specialist Group (TSG)
Country Coordinator, Brazil, IUCN/SSC Tapir Specialist Group (TSG)
- 16:30-16:45 **National Action Plan for Tapir Conservation in Colombia (Lowland, Mountain and Baird's Tapirs) (S)**
Olga Lucía Montenegro
Universidad Nacional de Colombia (UNAL), Colombia
Country Coordinator, Colombia, IUCN/SSC Tapir Specialist Group (TSG)
- 16:45-17:00 **National Action Plan for Tapir Conservation in Ecuador (Lowland, Mountain and Baird's Tapirs) (S)**
Fernando Nogales & Leonardo Ordoñez Delgado
Researchers, Fundación ArcoIris, Ecuador
Country Coordinators, Ecuador, IUCN/SSC Tapir Specialist Group (TSG)
- 17:00-17:15 **National Action Plan for Tapir Conservation in Guatemala (Baird's Tapir) (S)**
José Roberto Ruiz Fuamagalli
Escuela de Biología, Universidad de San Carlos de Guatemala
Country Coordinator, Guatemala, IUCN/SSC Tapir Specialist Group (TSG)
- 17:15-17:30 **National Action Plan for Tapir Conservation in Honduras (Baird's Tapir) (S)**
Nereyda Estrada Andino
Country Coordinator, Honduras, IUCN/SSC Tapir Specialist Group (TSG)
- 17:30-17:45 **National Action Plan for Tapir Conservation in Mexico (Baird's Tapir) (S)**
Epigmenio Cruz Aldán
Instituto de Historia Natural y Ecología, Mexico
Country Coordinator, Mexico, IUCN/SSC Tapir Specialist Group (TSG)
- 17:45-18:00 **National Action Plan for Tapir Conservation in Paraguay (Lowland Tapir) (S)**
José Luis Cartes
Guyra Paraguay, Paraguay
Country Coordinator, Paraguay, IUCN/SSC Tapir Specialist Group (TSG)
- 18:00-18:15 **National Action Plan for Tapir Conservation in Peru (Lowland and Mountain Tapirs) (S)**
Jessica Amanzo
Facultad de Ciencias y Filosofía, Universidad Peruana Cayetano Heredia, Peru
Country Coordinator, Peru, IUCN/SSC Tapir Specialist Group (TSG)
- 18:15-18:30 **National Action Plan for Tapir Conservation in Indonesia (Malayan Tapirs) (E)**
Wilson Novarino
FMIPA Universitas Andalas, Indonesia
Country Coordinator, Indonesia, IUCN/SSC Tapir Specialist Group (TSG)
- 18:30-19:00 **QUESTIONS & DISCUSSIONS**
- 19:00-22:00 Buenos Aires City Tour & Transportation to HOTEL Sheraton-Libertador

Sunday, January 29

- 08:00-09:00 Transportation to TEMAİKÉN
- 09:00-10:00 **KEYNOTE SPEAKER: Monitoring Tapir Populations: Needs, Tools and Challenges (S)**
Leonardo Salas
Animal Population Biologist, Wildlife Conservation Society (WCS) - Papua New Guinea
Tapir Conservation Newsletter Editor, IUCN/SSC Tapir Specialist Group (TSG)
- 10:00-10:30 **COFFEE BREAK / POSTER SESSION**
- 10:30-12:00 **WORKSHOP 2: Fundraising**
Organizers: Patrícia Medici, Brazil & William Konstant, United States
- 10:30-11:00 **TSG Fundraising Committee: REPORT (E)**
Patrícia Medici
Research Coordinator, IPÊ - Institute for Ecological Research, Brazil
Chair, IUCN/SSC Tapir Specialist Group (TSG)
Coordinator, Fundraising Committee, IUCN/SSC Tapir Specialist Group (TSG)
- 11:00-11:30 **Developing an Overall Fundraising Strategy to Support the IUCN/SSC Tapir Specialist Group (TSG) Programs (E)**
William Konstant
Director of Conservation and Science, Houston Zoo Inc., United States
Deputy-Chair, IUCN/SSC Tapir Specialist Group (TSG)
- 11:30-12:00 **Competition between Tapirs and Top Predators: Tigers, Andean Bears and Jaguars (S)**
Diego J. Lizcano
Universidad de Pamplona, Colombia & DICE University of Kent, United Kingdom
Country Coordinator, Colombia, IUCN/SSC Tapir Specialist Group (TSG)
- 12:00-13:00 **WORKSHOP 3: Confiscated Tapirs and Rehabilitation Centers**
Organizer: Rick Barongi, United States
- 13:00-14:00 **LUNCH** (TEMAİKÉN Restaurant)
- 14:00-15:30 **WORKSHOP 4: Tapir Management - Development of Re-Introduction and Translocation Protocols**
Organizer: Siân S. Waters, United Kingdom
- 15:30-16:00 **COFFEE BREAK / POSTER SESSION**
- 16:00-17:30 **WORKSHOP 5: Human/Tapir Conflicts**
Organizers: Siân S. Waters, United Kingdom, Diego J. Lizcano, Colombia & Silvia Chalukian, Argentina
- 16:00-16:10 **Human/Wildlife Conflict: What's All the Fuss About? (E)**
Siân S. Waters
Deputy-Chair, IUCN/SSC Tapir Specialist Group (TSG)
Coordinator, Zoo Committee, IUCN/SSC Tapir Specialist Group (TSG)
- 16:10-16:20 **Human/Tapir Conflict in the Andes (S)**
Diego J. Lizcano
Universidad de Pamplona, Colombia & DICE University of Kent, United Kingdom
Country Coordinator, Colombia, IUCN/SSC Tapir Specialist Group (TSG)

- 16:20-16:30 **Cattle Impacts on Lowland Tapirs in the Yungas Forest of Northern Argentina (S)**
Silvia Chalukian
 Programa de Investigación y Conservación del Tapir, Noroeste de Argentina
 Country Coordinator, Argentina, IUCN/SSC Tapir Specialist Group (TSG)
- 16:30-16:40 **Impacts of Irrigated Plantations of Sugar Cane and Citrus Fruit on Lowland Tapirs in Jujuy Province, Argentina (S)**
 Presented by **Silvia Chalukian** on behalf of Guillermo Nicolossi
 Programa de Investigación y Conservación del Tapir, Noroeste de Argentina
 Country Coordinator, Argentina, IUCN/SSC Tapir Specialist Group (TSG)
- 16:40-16:50 **Conflicts Between Subsistence Farmers and Malayan Tapirs in Sumatra, Indonesia (E)**
Wilson Novarino
 FMIPA Universitas Andalas, Indonesia
 Country Coordinator, Indonesia, IUCN/SSC Tapir Specialist Group (TSG)
- 16:50-17:30 **QUESTIONS & DISCUSSIONS**
- 17:30-19:00 **WORKSHOP 6: Tapir Husbandry and Captive Management in Latin America**
Organizers: Viviana Quse, Argentina, & Alberto Mendoza, Mexico/United States
- 19:00-20:00 Transportation to HOTEL Sheraton-Libertador

Monday, January 30

- 08:00-09:00 Transportation to TEMAIKÉN
- 09:00-13:00 **BEHIND THE SCENES TOUR**
 Conservation and Reproduction Center (CRET) of FUNDACIÓN TEMAIKÉN
- 13:00-14:00 **LUNCH** (TEMAIKÉN Restaurant)
- 14:00-16:00 **WORKSHOP 7: TSG Plans for Action 2006-2007 (Part A)**
Bengt Holst
 Director of Conservation and Science, Copenhagen Zoo, Denmark
 Member, IUCN/SSC Tapir Specialist Group (TSG)
 Convener, IUCN/SSC Conservation Breeding Specialist Group (CBSG) - Europe Network
Patrícia Medici
 Research Coordinator, IPÊ - Institute for Ecological Research, Brazil
 Chair, IUCN/SSC Tapir Specialist Group (TSG)
 Convener, IUCN/SSC Conservation Breeding Specialist Group (CBSG) - Brazil Network
- 16:00-16:30 **COFFEE BREAK**
- 16:30-19:00 **WORKSHOP 7: TSG Plans for Action 2006-2007 (Part B)**
Bengt Holst & Patrícia Medici
 IUCN/SSC Conservation Breeding Specialist Group (CBSG)
- 19:00-20:00 Transportation to HOTEL Sheraton-Libertador
- 21:00 NOCHE DE TANGO - Optional (on your own)

Tuesday, January 31

- 08:00-09:00 Transportation to TEMAIKÉN
- 09:00-11:00 **WORKSHOP 7: TSG Plans for Action 2006-2007 (Part C)**
Bengt Holst & Patrícia Medici
IUCN/SSC Conservation Breeding Specialist Group (CBSG)
- 11:00-11:30 **COFFEE BREAK**
- 11:30-14:00 **WORKSHOP 7: TSG Plans for Action 2006-2007 (Part D)**
Bengt Holst & Patrícia Medici
IUCN/SSC Conservation Breeding Specialist Group (CBSG)
- 14:00 **CLOSING CEREMONY**
Lunch, asado criollo, gaúcho dancers, wine, and more...

GENERAL PROGRAM

DAY	MORNING	AFTERNOON	EVENING
Jan. 26 Thursday	09:00 - 18:00. ARRIVAL AND REGISTRATION (Hotel Sheraton-Libertador)		19:00 - 22:00. ICEBREAKER (Hotel Sheraton-Libertador)
Jan. 27 Friday	08:00 - 09:00. Transportation to Tenaikén 09:00 - 10:00. OPENING CEREMONY 10:00 - 11:00. KEYNOTE SPEAKER Alan Shoemaker, United States 11:00 - 11:30. COFFEE BREAK 11:30 - 12:50. PAPER SESSION 1. Malayan Tapir 12:50 - 14:00. LUNCH	14:00 - 15:00. PAPER SESSION 2. Baird's Tapir 15:00 - 16:00. PAPER SESSION 3. Mountain Tapir 16:00 - 16:30. COFFEE BREAK & POSTER SESSION 16:30 - 18:50. PAPER SESSION 4. Lowland Tapir 19:00 - 20:00. Transportation to Hotel Sheraton-Libertador	20:00 - 22:00. AUCTIONS. Fundraising for the TSG Conservation Fund (TSGCF) (Hotel Sheraton-Libertador)
Jan. 28 Saturday	08:00 - 09:00. Transportation to Tenaikén 09:00 - 10:00. KEYNOTE SPEAKER Don Álvaro Ovidio Paya, Colombia 10:00 - 10:40. TSG COMMITTEE REPORTS (PART A) 10:40 - 11:00. COFFEE BREAK & POSTER SESSION 11:00 - 12:00. TSG COMMITTEE REPORTS (PART B) 12:00 - 13:00. KEYNOTE SPEAKER Matthew Colbert, United States 12:30 - 14:00. LUNCH	14:00 - 15:40. WORKSHOP 1 (PART A) Action Planning for Tapir Conservation 15:40 - 16:00. COFFEE BREAK & POSTER SESSION 16:00 - 19:00. WORKSHOP 1 (PART B) Action Planning for Tapir Conservation	19:00 - 22:00. BUENOS AIRES CITY TOUR & Transportation to Hotel Sheraton-Libertador

Jan. 29
Sunday

08:00 - 09:00. Transportation to Temaikén

09:00 - 10:00. **KEYNOTE SPEAKER**
Leonardo Salas, Venezuela/Papua New Guinea

10:00 - 10:30. **COFFEE BREAK & POSTER SESSION**

10:30 - 12:00. **WORKSHOP 2**
Fundraising

12:00 - 13:00. **WORKSHOP 3**
Confiscated Tapirs and Rehabilitation Centers

13:00 - 14:00. **LUNCH**

14:00 - 15:30. **WORKSHOP 4**
Tapir Management: Development of Re-Introduction and Translocation Protocols

15:30 - 16:00. **COFFEE BREAK & POSTER SESSION**

16:00 - 17:30. **WORKSHOP 5**
Human/Tapir Conflicts

17:30 - 19:00. **WORKSHOP 6**
Tapir Husbandry and Captive Management in Latin America

19:00 - 20:00. Transportation to Hotel Sheraton-Libertador

Jan. 30
Monday

08:00 - 09:00. Transportation to Temaikén

09:00 - 13:00. **BEHIND THE SCENES TOUR**
Conservation and Reproduction Center (CRET) of FUNDACIÓN TEMAİKÉN

13:00 - 14:00. **LUNCH**

14:00 - 16:00. **WORKSHOP 7 (PART A)**
TSG Plans for Action 2006-2007

16:00 - 16:30. **COFFEE BREAK**

16:30 - 19:00. **WORKSHOP 7 (PART B)**
TSG Plans for Action 2006-2007

19:00 - 20:00. Transportation to Hotel Sheraton-Libertador

21:00. **NOCHE DE TANGO**
Optional (on your own)

Jan. 31
Tuesday

08:00 - 09:00. Transportation to Temaikén

09:00 - 11:00. **WORKSHOP 7 (PART C)**
TSG Plans for Action 2006-2007

11:00 - 11:30. **COFFEE BREAK**

11:30 - 14:00. **WORKSHOP 7 (PART D)**
TSG Plans for Action 2006-2007

14:00 - 16:00. **CLOSING CEREMONY**
Lunch, asado criollo, gaucho dancers, wine, and more...

Departures and Transfers to Airport

Departures and Transfers to Airport

ABSTRACTS

PAPER SESSIONS

PAPER SESSION 1: Malayan Tapir (*Tapirus indicus*)

Malayan Tapir Monitoring through the use of the Camera Trapping Methodology

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The monitoring of Malayan tapirs in Taratak village, West Sumatra was conducted from 1999. Initially, the studies were based on the occurrence of tapir tracks, but we then used Track Plot Method (2004) and, in 2005, continued the monitoring using camera traps. This paper presents our results using camera traps. Eight camera traps (Photo scout - Highlander) were deployed through the study area 50 cm above ground level, and were checked every two weeks in order to change batteries and film. In total, 25000 camera-hours were used during this study. Data on tapir population were acquired based on the analysis of the image where scars and coloration of the tapirs' bodies was used to identify individuals. Our results indicate a low tapir population in this area (0.5 individual / km²). This study shows that the Malayan tapir is strictly nocturnal with an activity peak at 22.00 hours. The pattern of daily activity recorded during this study shows that activity varied with other studies conducted on Malayan tapir. Based on vegetation and camera placements, the tapir seems to prefer secondary lowland forest, in relatively flat, damp areas. The need of Malayan tapirs for salt licks is evidenced in their frequent visits to these areas in each two-week sampling period.

A Radio-Telemetry Study of Malayan Tapirs, *Tapirus indicus*, in Krau Wildlife Reserve, Malaysia

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Four Malayan tapirs, *Tapirus indicus*, were captured in Krau Wildlife Reserve, Malaysia, between November 2002 and November 2004. After testing various capture methods we decided to use custom made mobile steel traps that were deployed at four different saltlicks within Krau Wildlife Reserve. Due to undulating terrain and low transmitter range (max. 800 meters) we could only monitor two individuals at a time. The signal was lost from Tapir A (female) after only a few weeks of monitoring whereas transmitter failure resulted in signal loss from Tapir B (male) after only seven days. The last two individuals, Tapir C (male) and D (female) were captured in August and October, 2004, respectively and are still being monitored 12 months later. Preliminary results reveal that three of the tapirs move within a range of 12 to 70 km² (convex polygon). Tapir A (~70km²) migrated significantly more than Tapir C and D who utilized substantially less space at 12 and 15 km² respectively. In the latter two cases most of the area within the home range appears to be utilized at one time or the other. It is uncertain how much of the estimated 70km² is used by Tapir A. Home ranges of Tapir A, C and D overlap slightly but data suggest overlap may be seasonal, perhaps related to the mating season.

Using Camera Trapping to Determine Dispersal Range of Malayan Tapirs, *Tapirus indicus*, in Krau Wildlife Reserve, Malaysia

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Population estimates of elusive forest animals have always been a big challenge to field researchers. Estimating the population size of Malayan tapirs, *Tapirus indicus*, has traditionally been carried out through track census often resulting in significant overestimates. This study made use of 20 camera traps deployed in pairs at ten different locations in Krau Wildlife Reserve, Malaysia. The two most distant camera sites were approximately 16 km apart. Cameras were positioned approximately 75 cm above ground so that both flanks of any animal passing by would be photographed. More than 250 pictures of tapirs were analyzed and, through individual identification, these photographs represented between 10-13 different individuals. The data reveal that tapirs disperse substantially and that they frequent saltlicks significantly more often than any other animal species in Krau Wildlife Reserve. This suggests that assessing tapir densities based on trapping frequency with single cameras will likely result in serious over-estimation.

***Ex-situ* Conservation of Malayan Tapir (*Tapirus indicus*) in Peninsular Malaysia**

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The trend of displacement of large mammals in Peninsular Malaysia follows a standard pattern; an initial increase, which will peak and then decrease. The displacement is related to home range size, the largest being that of the Asian elephant (*Elephas maximus*), followed by the Sumatran rhinoceros (*Dicerorhinus sumatrensis*) and subsequently, the Malay tapir. After the last Sumatran rhinoceros was displaced in 1994, no more were observed outside their habitat. This is due to a decline in population as indicated by surveys and camera trapping (Zainal Zahari 1995). The next species predicted to follow this displacement trend is the Malayan tapir (Zainal Zahari *et al.* 2001). In 2003, 2004, and 2005, the total number of displaced Malayan tapir was six, two and two respectively. In early January 2006, two Malayan tapirs had already been displaced, one rescued and one still at large. Only 10-15% of displaced individuals were rescued. In contrast, the problem in captivity is poor breeding performance due to a skewed sex ratio of adults; 4 males to 13 females, within six captive facilities throughout the country. In 2004, due to the intensity of tapir displacement, a plan to reuse the Sumatran Rhinoceros Conservation Center for Malayan tapir conservation was suggested by DWNP and subsequently approved. The Malayan Tapir Conservation Center (MTCC) is part of the 45 km² Sungai Dusun Wildlife Reserve (SDWR) consisting of peat swamp and lowland forest. It is prime habitat for elephant, Sumatran rhinoceros and Malayan tapir. MTCC acquires displaced tapirs from the wild and surplus tapirs from zoos for breeding, research and conservation purposes. Ultimately, these captive bred individuals may be returned back to the wild. Currently, the center manages eight tapirs, six wild caught and two captive bred individuals. The captive facility at MTCC consists of 10 night stalls connected to seven large outdoor yards and a 4 ha forested enclosure which ultimately joins up to a 40 hectare enclosed forest. Currently, the center manages the tapir and routinely screens them for diseases. Research into molecular genetics, diseases, nutrition and reproduction started in 2005 but more intensive studies will take place in 2006 - 2009. Progesterone profiling and ultrasonography will be carried out on all females at the center and in other captive facilities throughout the country to determine breeding status and pathology. This would also enable all captive males to be utilized efficiently and effectively through rotation among facilities. A collective breeding management plan among these captive facilities will be initiated in Malaysia. Subsequently, in males, semen collection and cryopreservation will be attempted and the potential use of advanced reproductive biotechnology evaluated. In addition, all individuals will be DNA fingerprinted and compared to other individuals throughout the world with a view to the possibility of future exchange programs. Currently, DWNP is collaborating with various institutions and zoos in the country and internationally with Copenhagen Zoo, Denmark. It is hoped that these collaborations can be expanded further, to include all facilities with Malayan tapirs, throughout the world.

PAPER SESSION 2: Baird's Tapir (*Tapirus bairdii*)

Characterization of Baird's Tapir (*Tapirus bairdii*) Diet and Habitat in Riparian Ecosystems within the Laguna Lachuá National Park, Cobán, Alta Verapaz, Guatemala

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The purpose of this study was to describe the diet and the habitat of the Central American tapir (*Tapirus bairdii*: Perissodactyla, Tapiridae) in riparian ecosystems within the Laguna Lachuá National Park (PNLL), Cobán, Alta Verapaz, Guatemala. The diet was determined by means of indirect methods such as search and interpretation of trails and macroscopic analysis of feces. During one year (March 2004-March 2005), nine transect lines comprising a total of 16.6 kilometers were walked once a month, where browsed plants and fresh feces were collected. The collected feces were sun dried and stored for later analyses to determine the composition of the diet on the basis of the percentage weight of the undigested vegetal parts. For the characterization of the habitat, physical characteristics like flooding, type of channel and height with respect to the level of the river were described, as well as the characteristic of the vegetation in 25 sites located in the rivers Peyán, Lachuá, Tzetoc and La Illusion. In each site a Whittaker's modified parcel of 0.1 ha and data from structure and composition of the vegetation were taken. It was found that a tapir consumes at least 51 plant species belonging to 18 families. The best represented were Rubiaceae, Asteraceae and Piperaceae. The fecal analyses found that the diet was composed of leaves (67%), stem (28%), fruits (3%), and bark (2%). The habitat of tapir in riparian ecosystems within the PNLL, presents at least three vegetal associations that can be differentiated. The dominant associations are *non-floodable forest*, and *floodable forest* in which the arboreal layer dominates, displaying several vertical layers with individuals up to 40 meters in height and one density average of 480 individuals by hectare. In the understory there are large amounts of palms and vines. Apparently the greater contribution of these associations to the diet of tapir consists of fruits and bark. The *floodable "guamil"* vegetal association is dominated by shrub and sapling layers in the absence of the arboreal layer. In spite of it being present in smaller proportions than the previous associations, it is apparently, the one that provides the most abundant food source, since the high solar radiation and the seasonal floods that occur in these areas, assure an elevated biomass production due to the constant regeneration of the sapling layer.

How Many Tapirs Occur in Mexico? Estimating Numbers from Available Field Data

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We assessed total numbers of Baird's tapirs (*Tapirus bairdii*) in Mexico on the basis of available field information on this species' densities/abundances, as well as on the area of its current available habitat. Using three different density estimates (0.05, 0.1, and 0.3 tapirs/km²), and considering available habitat in good condition, we estimated that 773 (minimum), 1,545 (intermediate), and 4,636 (maximum) tapirs remain in Mexico. Considering intermediate estimates, the largest populations are in the following regions: Calakmul, Campeche (N=375), Quintana Roo forests (N=350), Lacandon Forest, Chiapas (N=300), Los Chimalapas, Oaxaca (N=300), and Sierra Madre de Chiapas (N=150). Other known but much smaller populations remain in Uxpanapa (Veracruz), El Ocote (Chiapas), Chacahua and Sierra de Juarez (Oaxaca), all of them probably with fewer than 50 individuals. In addition, it is likely that a few more marginal tapir populations survive in Centla and Tenosique (Tabasco), and in the southern end of Yucatan State. The current extension of good-quality habitat for tapirs in Mexico is around 15,450 km², including humid and subdeciduous tropical forests, montane forests, and mature secondary vegetation. From this area, we estimate that about 20 % (ca. 3,100 km²) is located outside extant protected areas (archeological sites, national parks, biosphere reserves, community reserves, and flora and fauna protection zones, among others). The main threats observed for tapir populations in Mexico are undoubtedly habitat loss and fragmentation resulting from the expansion and intensification of agriculture, cattle ranching and forest exploitation, as well as sporadic but uncontrolled hunting in the surroundings of extant protected areas in the south. We consider that the loss of remnant tapir populations in Mexico may be mitigated through the following actions: (1) protection of available habitat for tapirs within

protected areas extant; (2) promotion of self-regulated subsistence hunting in rural communities, focusing harvests on other species (for example, *Agouti paca*, *Dasyopus novemcinctus*, *Odocoileus virginianus*, and *Tayassu tajacu*), avoiding further tapir hunting; (3) developing alternative sources of income for residents of tapir-inhabited areas (*i.e.*, tourism and agro-forestry systems); and (4) establishing environmental education and research programs on tapirs and other threatened species in the surroundings of protected areas.

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

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Apart from the clearly important ethical and historical reasons for protecting tapirs, they are also crucial components for the maintenance of natural systems. As umbrella species, tapirs contribute to the process of designing reserve sizes and configurations. Because tapirs are sensitive to hunting pressure and habitat changes that affect cover and water sources, they are a good indicator of ecosystem health and function. Given the fast human population growth in southeastern Mexico, it seems essential to maintain the large, existing preserves for the survival of viable tapir populations. It is also very important to identify large forest fragments where tapirs remain in order to promote habitat management, hunting regulation, and other conservation practices in surrounding human communities. Within the country, it is suspected that tapirs survive in some forested areas of 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. These objectives are thoroughly included in the Action Plan's list of priorities for Baird's tapir conservation (Matola *et al.* 1997). The fieldwork consisted of visits to potential tapir distribution areas identified by Mexico's Committee for Tapir Conservation and Recovery (CTCR; a group of researchers fostered by the Mexican Federal Government). Within twelve months, tapir presence was recorded by searching for reliable evidence (skulls, feces and footprints), as well as through interviews with residents of communities near potential distribution areas. The results obtained suggest the presence of three populations; Chimalapas Forest, Sierra Juárez and Costa Oaxaqueña, which present different conditions. The discovery of Baird's tapir outside its known range in Oaxaca extends its known geographical distribution for Mexico. 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 by plotting all tapir locations on recent satellite images. Connectivity among forest patches with tapir presence was assessed through a GIS.

PAPER SESSION 3: Mountain Tapir (*Tapirus pinchaque*)

Mountain Tapir (*Tapirus pinchaque*) Habitat Suitability in the Andean Region of Colombia

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Ecology deals with organisms, their environment and all relationships between them, or can be defined as the study of all the relations that determine the distribution and abundance of organisms. As the most important implication of this definition, we can say that the distribution of individuals is not random; on the contrary there is a correspondence between the organisms and their environment. All the areas of research in ecology and conservation need the implementation of spatial models that helps to estimate or predict the distribution of populations. The knowledge of the distribution of species is an important element for conservation as a tool for the study of endangered species, ecosystems restoration, species reintroduction, population viability analysis and wildlife vs. human conflicts. The Andean region ecosystems are at a high risk

of losing this in a short period of time as well as the mountain tapir populations that inhabit them. We predicted the habitat suitability areas for mountain tapir populations in the Northern Andes of Colombia (1000-5765m); using GIS (Geographic Information Systems), remote sensing data and statistical tools. To obtain the habitat suitability areas we introduced information from 70 registered mountain tapir presence localities, from the study of Lizcano *et al.* 2002, and 13 ecological variables for the calibration and validation of the model. The calculation of the areas is based on the realized niche concept contained in the ENFA software (Ecological Niche Factor Analysis), used in this project to identify the variables associated with the presence of mountain tapir. The results of the analysis showed that the mountain tapir is associated with high altitudes of montane and cloud forest, with mean annual temperatures between 1.5-12 °C and mean annual precipitation ranging from 0 to 1000mm. On the other hand it avoids areas near water surfaces, with high mean annual precipitation (5000-9000mm) and areas with maximum temperatures between 20-28°C. Habitat suitability was calculated in 1142 km², 0.5% of the study area (207,856 Km²), distributed across the Central Cordillera in Los Nevados, Las Hermosas, Nevado del Huila and Puracé National Parks through the Colombian massif. Isolated areas from the Eastern Cordillera were calculated near Páramo de Pisba National Park. According to the results from this study, suitable mountain tapir habitat areas are concentrated mainly in the central cordillera showing a highly fragmented distribution. Thus in accordance with other studies, we have to pinpoint our efforts in identifying the areas of mountain tapir presence in the Eastern Cordillera, introduce this information in the model and clarify the distribution for these areas. The outputs of this project contribute spatial information to the distribution of mountain tapir in Colombia, as well as information at national level that can serve as input for modeling the distribution of other endangered species in Colombia.

Effects of Mountain Tapirs on the Forest: What's Happened After Two Years

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Mountain tapirs are the largest mammals in the tropical Andes. Currently their populations are highly fragmented and restricted to several forest patches between Colombia, Ecuador and Northern Peru. Mountain tapirs are mainly herbivorous eating a large number of species in the understory. The aim of this research was to establish the ecological role of such large herbivores in the forest and the effects of their interactions with cattle, altitude and type of forest. To accomplish that, 25 enclosure experiments and 25 controls were placed in mature and secondary forest in a nested design with altitude as the blocking factor. The effect on the forest was measured in terms of biomass and diversity. Measurements of plant biomass and diversity were taken, every six months, in a randomly selected 1 m² sub plot in each enclosure, and control over two years. The data were analyzed with a doubly multivariate General Lineal Modeling (GLM) repeated measures procedure, which provides an ANOVA when two or more measurements are made several times on each subject. Results showed a clear effect in terms of biomass across time. Herbivores removed 0.68 Ton by (year x hectare)⁻¹ in the understory, accounting for 43% of understory production and 15.7 % of total forest biomass, underlining their importance in structuring tropical montane forest. By suppressing almost half the biomass in the understory the large mammals may be changing the competitive balance in the understory, with profound implications for the structuring and functioning of montane forest. Meanwhile effects in terms of diversity were not consistent through time. Nevertheless in open plots, diversity was lower in the first sampling but, increased in the two subsequent samplings. This diversity stabilization in open areas through time and the increase in diversity of open plots can be explained by removal of faster growing species such as grasses, ferns and *Miconia* spp., which can make shade quickly, thus dominating the early succession in the excluded plots. Removal of these faster growing species in open plots by herbivores, allows the growing of other species, thus increasing the diversity. In this order of ideas, the presence of large herbivore mammals may make regeneration of secondary forest faster by removal of fast growing and shade producing plant species, usually considered as barriers to the regeneration of montane forest. Results of this study may be used to justify the implementation of programs designed to prevent the disappearance of large herbivores in the tropical Andes. Policy-makers can use this information to justify increased efforts to reduce hunting pressure. These results should be incorporated into local and national environmental education campaigns focusing on the importance of mountain tapirs as large herbivores in the ecosystem.

Modeling the Distribution of the Mountain Tapir (*Tapirus pinchaque*) in the Colombian Massif

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The mountain tapir (*Tapirus pinchaque*) is considered as an umbrella species because it is a large mammal and has a widespread distribution. This species is found along the Colombian, Ecuadorian and the northern Peruvian Andes, at an altitude of between 2000 and 4500 m above sea level. Its natural habitat is threatened by human pressure reflected mainly in infrastructure construction, deforestation, agriculture, livestock and urban growth. Though some efforts have been made to ascertain its distribution, there are still a lot of gaps in our knowledge due to it being dispersed and not geo-referenced. In this project the available information was compiled from "Unidad de Parques Nacionales" and additional data were taken in the field for the Colombian massif areas. Potential and current distribution models for the species were created, by using environmental variables with different GIS tools to generate fundamental and real niche models for the species. Parametric statistic tests were made to prove the reliability of the models.

PAPER SESSION 4: Lowland Tapir (*Tapirus terrestris*)

Regional Assessment of the Status of Lowland Tapirs (*Tapirus terrestris*) in the Upper Paraná Atlantic Forest Ecoregion

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The Upper Paraná Atlantic Forest (or Interior Atlantic Forest) eco-region is a subtropical rainforest distributed throughout the Misiones province of Argentina, South Brazil and East Paraguay. As a result of forest conversion and degradation it is one of the most endangered rainforests on earth, with only 7% of its original extension remaining as isolated forest fragments. The objective of this work is to assess the current distribution and population status of the lowland tapir in this eco-region. We carried out a compilation of bibliographic information accompanied by interviews with researchers, park rangers and local inhabitants regarding the presence of the species in the region. In order to evaluate the relative abundance, habitat use and activity patterns of tapirs in Misiones, we conducted surveys with camera-traps in three different areas: Urugua-í Provincial Park and Reserve (34 sampling stations, 1,409 trap-days, area surveyed=8,146 ha), Iguazú National Park (44 sampling stations, 1,631 trap-days, area surveyed=20,227 ha) and Yabotí Biosphere Reserve (23 sampling stations, 1,060 trap-days, area surveyed=37,146 ha). Each sampling station consisted of two camera-traps facing each other, located along infrequently used dirt roads or trails opened with machete. We estimated the daily activity pattern through the time printed on the photographs. In East Paraguay the species subsists in only four protected areas: San Rafael Managed Resources Reserve (58,490 ha), Bosque Mbaracayú Natural Reserve (59,056 ha), Itabó (9,885 ha) and Limoy Biological Reserve (11,866 ha), we could not confirm the presence in Morombí Private Reserve (25,000 ha) and Cerro Corá National Park (6,005 ha). In Brazil the species is present in the few remaining well-protected forest fragments larger than 3,000 ha. In Misiones, the tapir is still present in forested areas of the center and North of the province (Green Corridor), but its distribution has declined more than 30 % within the last 40 years. The mean camera-trap capture rate was five times higher in Iguazú, an area with lower hunting pressure, than in both the other areas (Kruskal-Wallis, $\chi^2 = 34,1796$; $df=2$; $p<0.0001$). In all the study areas, tapirs were more active during night time, and we did not find any spatial patterns related to habitat use (distance to rivers, presence of streams, canopy cover, and bamboo abundance). Our analysis of present distribution and relative abundance suggest that the abundance and presence of tapirs in a forest remnant depends on fragment size and hunting pressure. The presence of tapirs in the eco-region is limited to fragments of native forest larger than 10,000 ha (or areas near to these fragments). In smaller fragments, the presence of the species depends on hunting pressure. Other variables not examined in this work, like food availability, could affect tapir populations and require further study. The Misiones Green Corridor contains the largest tapir population of the Upper Paraná Atlantic Forest. The long-term

conservation of the tapirs in this eco-region will depend on the maintenance of large native forest blocks and the implementation of the protected areas and laws that protect this species.

Ecology of *Tapirus terrestris* in the Rainforest of Madre de Dios, Peru: Preliminary Results from a GPS Collar and Telemetry Study

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While lowland tropical rainforests cover the largest part of *Tapirus terrestris*' distribution range, very little is known about their home range size, habitat use and movement patterns within this habitat. These are the main questions we are trying to answer with this project. At the same time, we are looking at diet, seed dispersal and use of mineral licks. Few studies have been conducted on lowland tapirs using telemetry. Radio telemetry is difficult in large continuous forest areas and the amount of data collected is often very limited. GPS collars are an alternative but are often unable to get a signal under the heavy canopy. In this study we are testing a new type of GPS collar with better performance under canopy. The collars were manufactured by Advanced Telemetry Systems but their regular GPS module was replaced with a TrackTag GPS from Navsys Inc. The collars weigh 1.3 kg and include a VHF transmitter and remote drop-off unit. They store the data within this system and have to be recovered at the end of their lifetime. To capture tapirs we built blinds at mineral licks within the Los Amigos Conservation Concession in Madre de Dios, Peru. Between July and October 2005 we captured and collared five adult tapirs, four females and one male. The collars attempt to collect a position every 15 minutes and last for 340 days. The first results collected from a collar that was on an animal for eight days showed that the success rate is between 15 and 20%. While this seems relatively low, this still gives us 15 to 20 positions a day or 132 positions during the eight day period, much more data than could be collected by radio telemetry at the study site and probably much better than the performance of a regular GPS collar. The data shows that the animal walked more than 10 km from the mineral lick back to what we think is its normal range. On a daily basis, the animal used different small areas of 20-50 ha within an area of about 2.5 km². While these are very limited data and should not be taken as home range size, they demonstrate the information we can obtain from the use of the GPS collars. Preliminary data from regular telemetry show that the animals have relatively stable home ranges they use over several months. Three animals almost exclusively use the *terra firme* forest while two animals use both floodplain forest and *terra firme* forest. The latter two, a male and a female, have a large overlap of their range. Distances to the mineral lick vary from less than 1 km to over 10 km, which will allow us to look at patterns of lick use in relationship to distance.

Landscape Genetics of the Lowland Tapir (*Tapirus terrestris*) in the Pontal do Paranapanema, Brazil

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As the conservation of mammalian diversity moves from a species focus to a landscapes focus, a better understanding on how landscapes affect species is essential to tailor effective management decisions. Here, we investigate the effects of a highly fragmented landscape (the Pontal do Paranapanema) on the genetic diversity of lowland tapirs. Specifically, we are asking: (1) what are the barriers to gene flow in the landscape?; and, (2) what are the dispersal routes used by tapirs in the landscape? To carry out this study we will analyze genetic variation in a landscape genetic framework. In particular, DNA is being extracted from samples collected opportunistically in 11 of the 14 largest forest fragments in the region along with GPS points. Genetic variation will then be quantified using microsatellite markers specifically designed for tapirs. To answer question one, we will combine our two forms of data (namely, geographic points and microsatellite genotypes) into a spatial statistical model designed with a Bayesian approach to infer the genetic boundaries in the landscape. These boundaries will then be related to physical aspects of the landscape using ArcViewGIS, allowing us to identify which landscape features are important deterrents of gene flow from a tapir point of view. In question two, a series of Mantel Tests will be used to measure the degree of association between the genetic distances among individuals and different measures of physical distances among individuals. Explicitly, we chose two different forms of physical distance and evaluated which physical distance best explains genetic distances among individuals. We calculated the "as the crow flies" distance; and, we calculated the distance that maximizes forested areas associated with bodies of water. This will allow us to test two different hypotheses, one that tapirs have no preference to particular features of the landscape when dispersing, and the other that

tapirs do have a preference for certain features of the landscape over others as "avenues" for dispersal. This work is essential for the conservation program carried out by IPÊ in the region, for it will allow us to pinpoint essential genetic discontinuities in the landscape that might be a result of anthropogenic changes of the landscape; and, furthermore, identify what are the features of the landscape that are important in maintaining crucial links among populations, and therefore must be conserved. Furthermore, it will contribute to the TSG Genetics Committee Tapir Genetics Project. So far, we have been able to successfully extract and genotype DNA from dung samples. Our next steps are to analyze the collected genotypes in the context described above.

Lowland Tapirs as *Landscape Detectives* for the Atlantic Forest: An Overview of Almost a Decade of Research

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This project has been focusing on the research and conservation of wild populations of lowland tapir (*Tapirus terrestris*) in the Atlantic Forest of the Pontal do Paranapanema Region, São Paulo State, Brazil, for the past nine years. The Pontal region includes Morro do Diabo State Park (35,000 ha), Black-Lion-Tamarin Ecological Station (~4,000 ha), and surrounding forest fragments (~8,000 ha). The Brazilian Atlantic Forest is one of the most threatened ecosystems on the planet. Today, these forests have been reduced and fragmented to 7% of their original size, but still harbor one of the greatest levels of biodiversity containing nearly 7% of the world's species, many of which are endemic and threatened with extinction. The lowland tapir is presently listed as Vulnerable on the IUCN *Red List of Threatened Species* (2004 Assessment), and as Endangered on the U.S. Fish & Wildlife Service list. The specific objectives of this long-term study have been to gather data on and continuously monitor tapir population demography, dispersal patterns, genetics status, health conditions, and feeding ecology in both protected areas as well as in the forest fragments. For the past nine years, we have successfully captured, immobilized, radio-collared and monitored twenty-five tapirs (13 females and 12 males) in the region. The major goal of this project is to use all the information gathered through the years to analyze the viability of the lowland tapir sub-populations and metapopulation surviving in the Atlantic Forests of the Pontal region, and design a Regional Action Plan prioritizing recommendations for the research, conservation and management of the species and its remaining habitat at the regional level. Action plans are designed to promote species conservation strategies backed by sound scientific information, which is synthesized and translated into prioritized conservation recommendations suggesting realistic solutions attainable by specific actions. They provide a common framework for a range of players from decision-makers at the governmental level, to those who will implement the recommendations on the ground. An action plan is a "snapshot in time", serving as a baseline set of data and information against which to measure change and monitor progress, indicating where changes of emphasis or direction may be needed to conserve the species. This paper will provide an overview of our activities over the past nine years and will offer details regarding the development of the regional action plan.

Lowland Tapir Distribution Update in the Colombian Orinoquia Region

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Lowland tapirs used to inhabit several areas in the Colombian Orinoquia region (about 250,000 km²), but oil extraction, cattle ranching, commercial agriculture, and human colonization have affected the area for several decades, and therefore the continued existence of remnant populations of tapirs was uncertain. The specific objectives of this study were to

determine where lowland tapir populations are still present in this region of Colombia, to locate areas where lowland tapir populations have been absent for more than 20 years, and to provide management and conservation recommendations for lowland tapirs to the regional environmental authorities. From October 2004 to July 2005, we visited several localities in the departments of Arauca, Casanare, Meta and Vichada to gather information on tapir presence/absence. We conducted informal interviews with local inhabitants, researchers, and institutional representatives, and in selected sites of Casanare, Vichada and Meta, we conducted fieldwork to confirm tapir presence. For other unvisited localities, we collected information with mailed surveys. We placed current and historical (more than 20 years) tapir records on the most current map of the Orinoquia ecosystems. To interpret tapir distribution in the area we used information on current land use, and human population growth in the region during the last 20 years. We found that the lowland tapir is locally extinct in 27% of the Orinoquia region, especially in the western area of Casanare and Meta, where tapir records are older than 50 years. These areas are currently dominated by pasture, commercial crops and human settlements. Current tapir distribution in the Orinoquia region is fragmented in the following four core populations: 1) foothills and riparian forest in Araucita and Tame municipalities of Arauca, 2) riparian forest and flooded savannas of Cravo Norte Municipality in Arauca, and riparian forests of the northern Meta Basin, 3) Tuparro National Natural Park, to eastern Vichada, and 4) areas of La Macarena, Tinigua and Picachos National Parks in southwestern department of Meta. The above areas represent 11% of the study area. Other tapir populations may occur in the dense forests located between the Vichada and Guaviare rivers, but field confirmation is needed. The latter forests represent 25% of the study area. The remaining 37% of the area corresponds to seasonal dry savannas, where no tapir records exist and represent unsuitable habitat for tapir populations. The above results are being presented to the appropriate regional environmental authorities. We propose to include tapirs as a study priority within the Tuparro National Park research plan currently in design. Likewise, we recommend carrying out evaluations of the other three core populations to determine their size and conservation status. In addition, we suggest protection of the riparian forests along the northern Meta Basin, to ensure the survival of the tapir population at this site. Finally, we propose an evaluation of the forests located between the Vichada and Guaviare rivers to confirm the existence of other tapir populations. Such evaluation would require a joint effort with the indigenous peoples in the area.

Browse and Fruit as a Source of Minerals for Lowland Tapir in the Yavari-Miri Region, Peruvian Amazon

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In several sites of the Amazon forest, especially in western Amazonia, lowland tapirs frequently visit natural licks, and may spend on average half an hour in geophagy (ingestion of soil materials). One common hypothesis is that animals engaging in geophagy are under some kind of stress, often of a nutritional nature. Although the diet of lowland tapirs has been studied in several locations of the Amazon basin, very little is known about the nutritional content of these diets. In addition, mineral requirements and status of tapirs in the wild are unknown, making it difficult to identify any deficiency or imbalance that may be driving them to visit natural licks. The purpose of this paper is to evaluate lowland tapir food as a source of minerals in the Yavari-Miri River valley, in the northern Peruvian Amazon. The main hypotheses examined in this paper are the following: (1) lowland tapir food is limited in one or more mineral nutrients, and such limitation is constant throughout the year, (2) Excretion of limited minerals (at least for some minerals) is low in tapir feces. To test these hypotheses, the diet of the lowland tapir in the Yavari-Miri River was studied, and the mineral content of the most frequently eaten foods was analyzed. More than 100 samples of browse and some fruit eaten by lowland tapir were collected along 65.8 km of trails. Also, close to 70 samples of tapir feces were collected and preserved for further analyses. Browse, fruit and fecal samples were analyzed for concentration of nitrogen and 11 minerals: six macro minerals (P, K, Ca, Mg, S and Na) and five trace minerals (Mn, Zn, Cu, Fe, and B). Mean concentration of each mineral in the leaves was compared between high water and low water seasons. Also, mineral content of leaves was compared among the most common plant families in the tapir diet. The mean concentration of each mineral was compared between leaves and fruits. Finally, the mean concentration of each mineral in feces was compared to mean concentrations in both leaves and fruits separately. We found that mineral contents in browse and fruits eaten by lowland tapirs seem adequate, based on horse diets, except for Na, P, Cu and Zn, whose levels are below suggested requirements, especially for growing and lactating female horses. Levels of Na, P and Cu excreted in tapir feces are higher than expected if tapirs were facing a deficiency of these minerals. These elements were found in

higher concentrations in soils eaten by tapirs, suggesting that geophagy at natural licks functions as a natural supplementation of those minerals in the forest. These results suggest that tapirs, and possibly other lick users, obtain minerals that are in short supply in their diets by consuming soils from natural licks. As a consequence, natural licks may be a very important resource for lowland tapirs and possibly other herbivore/frugivore species in the Yavari-Miri River.

Cytogenetic and Molecular Characterization of the Amazonian Tapir (*Tapirus terrestris aenygmaticus*)

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The Amazonian tapir (*Tapirus terrestris*) is the largest terrestrial mammal of the Neotropics. It performs important functions such as: seed dispersal and marking of footpaths that other animals use. There are four extant species of tapirs, three in the Neotropics of Central and South America and one in Southeast Asia. The species with the greatest distribution in Ecuador is the Amazonian Tapir (*Tapirus terrestris*) which has four subspecies, one of them, *Tapirus terrestris aenygmaticus*, is present in the Amazonian rainforest (Hershkovitz 1984). *Tapirus terrestris* is listed in the IUCN Red List of Threatened Species as Vulnerable, seriously threatened by extractive processes (lumber, oil industry and hunting). Its extinction would entail the alteration of the dynamics of the ecosystem it inhabits, and it would cause enormous damage to local populations that have traditionally depended on tapirs as a source of animal protein. Little research has been developed on the molecular genetics and cytogenetics of the four extant species of tapirs. Most of the studies have focused on monitoring wild populations to estimate density, home range, dispersal patterns and population genetic structure. Here, we undertake a preliminary study that aims to characterize *Tapirus terrestris aenygmaticus* subspecies using molecular biology and cytogenetics methods. This study is part of the plan to describe tapir genetic variation in distribution countries as recommended by the Tapir Action Plan (IUCN, 1997) and the Genetics Committee of the Tapir Specialist Group (Gonçalves da Silva, Sarria, Constantino & Medici 2004). Blood samples of four individuals were obtained in three localities of the Amazon region of Ecuador. The animals were chemically immobilized with a mixture of Xilazina (2 mg/kg de peso) and Ketamina (3 mg/kg) and the samples were taken in heparinized tubes and EDTA tubes. For the cytogenetic study, the samples were cultivated in RPMI 1640 culture medium for 72 hours and metaphases were analyzed in a phase contrast Carl Zeiss MC80DX microscope. The karyotype of one female was determined to be 80, XX by referring to the Ideogram of the Amazonian tapir proposed by Sarria (1999). Two pairs of submetacentric, six pairs of subtelocentric and 32 pairs of acrocentrics autosomal chromosomes were found. The sex chromosome pair was found to be submetacentric. Finally, we also determined the Centromeric Index and Relative Length. For the molecular study, DNA was extracted according to the protocols routinely used in the laboratory and PCRs were done using specific primers for the 12S mitochondrial DNA region (1.2 kb). The amplified products were run in 2% agarose gels. The second part of this study aims to sequence the PCR products to characterize the 12 S mitochondrial DNA regions. The characterized sequence can be used as a pattern for comparison with the three remaining subspecies of *Tapirus terrestris* using a molecular systematic approach.

POSTERS

Malayan Tapir (*Tapirus indicus*)

Habitat Suitability Index: Malayan Tapir (*Tapirus indicus*)

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A habitat suitability index was developed for the Malayan tapir (*Tapirus indicus*). Habitat suitability indices are used by the United States Fish and Wildlife Service (USFWS) to assess habitat quality. This model was created based on a review of existing literature and is applicable year-round in primary and secondary forest ecosystems through the full range of the tapir. Specific information on minimum areas required was not found in the literature, so based on home range data, it was assumed that a minimum of 60km² of habitat must exist or the HSI will equal zero. This model considers the food, water, and habitat composition requirements of the Malay tapir in order to determine the overall habitat quality. It is assumed that these three habitat components can assess habitat, however this model does not assume that all tapir species are alike, thus it only uses information sources specific to the Malayan tapir. Food composition variables include the percent of saplings with diameter less than 6.5cm, woody plant to non-woody plant ratio, and the percent of fruit bearing trees in the area. Water composition only consisted of one variable, the distance to fresh water. Habitat composition variables include elevation, distance to salt lick, and the percent of canopy cover. The results in a score between 0-1, one being optimal habitat for the Malayan tapir and zero being inhospitable habitat. This model has not been field tested. It is recommended that in testing this model ten 1km² sections are surveyed within every 100km² area. An additional application of this model would be to overlay each variable on a map of the Malayan tapir range using GIS applications to identify habitat critical to conserving tapirs.

Breeding Malayan Tapirs (*Tapirus indicus*) For Potential Release

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Mountain View Conservation Society is located on approximately 125 acres of land in the temperate rain forest outside Vancouver, BC. The facility has grassed pastures that are separated by wooded ravines. This is the home of our Malayan tapirs. The first pair of Malayan tapirs was acquired in 1994. Their first baby died at birth, as do over 60% first time tapir births. Their second offspring was born in 1998 and named Trinket. She was born in the barn of the tapir enclosure. The staff at Mountain View has a hands-on approach to tapirs, and keepers could groom Trinket within two days of her birth, with both sire and dam present. Over the following months, the keepers spent a substantial amount of time with the three animals, allowing very close observations. When Trinket was mature, she was separated from sire and dam, but shared a common fenced barrier with them. This was thought to mimic a wild situation, with the goal of managing animals for potential release. A new male, Hidung, was brought to Mountain View in July 2001. Hidung and Trinket had a baby in 2002 which died at birth. They have had two offspring since then, one in April 2004, who is still here, and the latest one, a male, was born on September 6, 2005. He was born in a large 15+ acre enclosure, with ravines scattered throughout and many species of trees. He was first noticed in the early morning following Trinket. When Trinket was seen again, the calf, now named Thai, was not in her vicinity. She had hidden it, a behavior not previously observed in earlier births here. Over the next few days, when both dam and calf were seen, she was very protective and even bluff-charged keepers. During this time, the sire was also in this enclosure, but not allowed near the calf. The ravine is also home to predators such as coyotes, but the calf was not perturbed by them. At six days of age, the weather started worsening, and a decision was made to bring both mother and calf into the barn. This actually took couple of days, as Thai was very well hidden and could not be found by the keepers until the two tapirs were seen together and coaxed into the barn. Once in the barn, Trinket allowed the keepers to weigh her calf several times and a veterinary check was also performed. With this latest birth, there seems to be a meshing of the best in wild and captive behavior; allowing keepers to handle the calf to ensure its health, while exhibiting the wild behaviors that would bode well for survival if released back to the wild.

Baird's Tapir (*Tapirus bairdii*)

Use of Habitat by Baird's Tapir (*Tapirus bairdii*) in Laguna Lachua National Park, Alta Verapaz, Guatemala

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We identified four different vegetation types using satellite images and conducting fieldwork for the purpose of discovering how tapir use the habitat within Laguna Lachua National Park in Alta Verapaz, Guatemala. The four habitats studied were temporarily flooded forest, non-flooded forest, temporarily flooded forest at the primary stage of regeneration and non-flooded forest at the primary stage of regeneration. Fieldwork included track counts (footprints, feces and feeding signs) along nine transects totaling 16.2 km in length, twice a month from March 2004 to June 2005 ($n = 141$). Using Neu *et al.*'s method (X^2 and Bonferroni confidence intervals) we found that there are significant statistical differences between observed values and foreseen values. Analysis tells us that tapirs use the temporarily flooded forest more than expected while their use of non-flooded forested area was less than expected.

Situation and the Baird's Tapir Population Tendencies in the Sierra Madre de Chiapas, Mexico: Ten Years of Monitoring

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Various studies on Baird's tapir populations have been carried out in parts of Chiapas State, Mexico, for more than 10 years. Without doubt those populations in the Sierra Madre are the most threatened due to fragmentation of the forest in that area. Human impacts such as the setting of forest fires to burn the forest in order to use the land for cattle ranching, agriculture, and government programs, as well as hunting, are all factors in the shrinking tapir populations in the Sierra. It is also important to consider the natural predation on tapir populations by large cats and the other natural phenomena that have impacted the area over the years, partly as a consequence of human activities. Information collected over the last 10 years in the two most important Biosphere Reserves in the Sierra Madre de Chiapas, namely the El Triunfo and La Sepultura parks, has discovered that the species' habitat is diminishing in an important way. Additionally, a downward trend has been observed over the last 10 years in the abundance of the species which has decreased from 0.86 tracks/km to 0.30 tracks/km in 5 years. For La Sepultura the observed difference is from 0.12 tracks/km to 0.30 tracks/km in seven years. These data indicate that we should now act to conserve this, the most northerly population of Baird's tapir in Central America.

Potential Distribution and Landscape Characteristics Associated with Tapir (*Tapirus bairdii*) Habitat in the Sepultura Biosphere Reserve, Chiapas, Mexico

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The Mesoamerican tapir (*Tapirus bairdii*) is an important disperser in Mesoamerican forests. However, its conservation status in its current distribution range is critical. This is due to the loss and fragmentation of its original habitat. The objective of the current study was to provide spatial information in order to contribute to the development of conservation strategies for the Mesoamerican tapir and its habitat in the Sepultura Biosphere Reserve (REBISE) on a local landscape level. Landscape

pattern characteristics for tapir habitat in the study area were obtained by using the program *Fragstats 3.3* to analyze vegetation and land use maps (1:50,000 scale) in two sectors of the study (Palmita and Tres Picos). The quantitative descriptors for the landscape pattern and the environmental factors associated with the suitable habitat for the species were defined from measurements with a radius of 312 ha which corresponded to the exact data obtained in areas that are currently used by the species (active sites) and from randomly chosen sites (control sites) as well as the use of logistical regression techniques and GIS. The results suggested that the species inhabits fragmented areas but that it maintains a good state of conservation and have high heterogeneity. Pastures represented a potential threat for inducing changes in the spatial configuration of the habitat (medium and low forests, pine-oak forest, and second-growth forest) preferred by *T. bairdii*. Slope was the most important predictor variable in the logistical regression model. This model reflected the potential distribution of the species in the steeper areas with better REBISE conservation as the nucleus zones. However, outside these zones, the available habitat is highly fragmented and has little physical connectivity. This means that less than 50% of the territory in the study area showed attributes with suitable habitat for the species. Therefore, it is necessary that conservation strategies for this species and its habitat in the reserve consider spatial requirements and landscape ecology principles.

Selection and Reflection in a Large Herbivore: *Tapirus bairdii*'s Browse Selection in a Costa Rican Rain Forest

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Foraging theory is a key concept in ecology underlying the diet selection in all animals. Plant selection by large herbivores is particularly important because they have the potential to shape plant diversity in an ecosystem. Hence, greater emphasis is being placed on understanding the link between how and why food resources are chosen. In Neotropical forests, Baird's tapir (*Tapirus bairdii*) is among the largest herbivores and as such have the potential to influence plant communities. My research focuses on the foraging selection of Baird's tapir at Corcovado National Park, Costa Rica, their mechanisms behind plant selection and the consequences to the plant community. Additionally, I want to determine if patterns of tapir foraging may impact food web components, such as the *Heliconius* butterfly community that depend on specific plant species selected by the tapir. In summer 2005, I used the point - quarter technique to determine if tapirs select for specific plant species and to quantify the frequency individual plants are browsed. First, I found that tapirs select particular species, many of which are known to contain secondary plant compounds, and repeatedly browse individual plants. For example, tapirs often selected plants of the family Sapindaceae, which contain aglycones, which are easily converted to Hydrogen cyanide (HCN) in the presence of fermenting bacteria (as in the enlarged cecum of tapirs), or Rubiaceae which contain alkaloids. These compounds may aid in digestion or act as self medicating agents. Second, tapirs foraged twice as often in secondary forests as in primary forests, which may be due to several factors: specific plant composition, elevation, amount of water or understory biomass. This study serves as the basis for my future research, which will address foraging mechanisms of the tapir as well as the cascading effects of tapir foraging on the community. Specifically, I will determine whether: (1) Tapirs are selecting or rejecting plants based on specific secondary compounds or (2) if tapir foraging patterns are constrained to phylogenetically related plant species. One would expect herbivores to be selecting for similar compounds found in closely related species as they are trying to meet their nutritional needs. (3) Finally determine what food webs are being affected the most by tapir foraging. Understanding the mechanisms behind the diet selection of herbivores will allow us to better understand the interactions of the ecosystems that need to be preserved, maintained or created to continue the conservation of this amazing herbivore. This information not only is beneficial to the tapir but can potentially lead to mechanisms applied to all foraging ungulates and their effects on the ecosystem.

Mountain Tapir (*Tapirus pinchaque*)

Estimating the Genetic Diversity of Mountain Tapir Populations in Colombia

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DNA retains information about evolutionary history such as population size, population fragmentation, selection history, etc. Therefore, detecting molecular differences between individuals and populations will allow us to understand the evolutionary processes and demographic events of mountain tapir populations. This project studies the genetic diversity of mountain tapirs in three different points of their distribution in Colombia. Currently we have information on ecology and demography of some populations of mountain tapirs, but no information exists about the genetic structure of any population, which is very important for the knowledge of evolutionary processes and natural history of wildlife populations. This is the first approach to the knowledge of the genetic structure of the Colombian populations of mountain tapirs and will give us a better idea of the conservation status of its populations. This project will give us new data on remnant mountain tapir populations underlining the importance of the use of new non-invasive and molecular biology methods to study the status of endangered species. As a product this project will contribute to the development of methods and molecular markers that many researchers can use to look at genetic, demographic, ecological and natural history information of mountain tapir populations. The success of the DNA analyses to detect differences between individuals and populations depends on the quality and type of tools used in the molecular biology routines. Our preliminary results show the need to introduce highly variable genetic markers, microsatellites, to ensure a better resolution. For the development of microsatellites it is necessary to obtain DNA samples of at least 20 mountain tapir individuals. At this time, we hold samples from three different individuals from the Cheyenne Mountain Zoo (US) and with three other potential samples, two from the Populations Genetics Laboratory of Javeriana University (Colombia), and one from a six month juvenile under the care of the CAM Corporation (Corporación Autónoma del Alto Magdalena, Colombia). To date, we have completed four field trips to Los Nevados and Nevado del Huila National Natural Parks, where 38 and 21 hair samples respectively, were obtained. All procedures used are those described by Anders Gonçalves in the TSG document: *Sampling Techniques for Genetic Analysis*, where the hair samples are preserved dry, in sealed, unwaxed envelopes with silica gel. Additionally, GPS points have been recorded for every hair sample. All the samples are kept at room temperature in the laboratory before analysis. Preliminary results from these analyses will be presented.

Ecology and Conservation of Mountain Tapirs in a Cattle Ranching Environment

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This is a conservation and research project of the most endangered large mammal in the tropical Andes, the mountain tapir (*Tapirus pinchaque*). It is a collaborative effort among Colombian and North American researchers, veterinarians, field biologists, donors and environmental educators. The project is being carried out in Los Nevados National Park, in the Risaralda State in the Central Andes of Colombia. The goals of this project will be two-fold: 1) a better understanding of mountain tapir habitat requirements and; 2) the development and implementation of cattle ranching and conflict avoidance plans which will consider the needs of both ranchers and mountain tapirs. The results of this project may be useful for other areas facing the issue of cattle ranching impacts throughout the mountain tapir's distribution range. Specific outcomes will be the development of a cattle management plan for Los Nevados National Park and its buffer zones based on: detailed knowledge of tapir habitat use, habitat requirements, home range, movements, and distribution of tapirs in the central Andes of Colombia; a GIS database including information about protected areas, cattle ranching areas, surrounding human settlements; and spatially explicit mountain tapir habitat suitability models. Environmental education is also an important aspect in this project. The mountain tapir's habitat requirements and movements will be studied using the latest telemetry technology and GPS collars. The telemetry data will provide the necessary pieces of information for the development of the cattle management plan for Los Nevados National Park. This is the most detailed study ever proposed for large mammals in the Tropical Andes and has the potential to become a springboard for other research, conservation, education and management initiatives in the region.

Conflict between Mountain Tapirs (*Tapirus pinchaque*) and Farmers in the Central Andes of Colombia

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Los Nevados National Park constitutes the northern limit of the mountain tapir distribution in the Central Andes of Colombia. Los Nevados (snow peaks) National Park, with a total area of 58,000 hectares, has a population of 20 families who were living in the Risaralda area before the creation of the park. These families work in the area, growing potatoes and cattle ranching in the Paramo region. Conflicts between people and tapirs originates when the *campesinos* need to clear more forest in order to plant more potatoes. The tapirs visit the cleared forests on a regular basis and eat the sprouting potato plants. As a result, the *campesinos* small farmers lose their crops and consequently view the tapir as a problem. In the recent 4 years five tapirs were killed for this reason. The *campesinos* have tried to resolve the problem of tapirs eating potato plants by putting scarecrows made of plastic materials in the fields and using smoke and sulphur vapors to drive out tapirs, without any positive results to date. Another possible solution to the problem is paying compensation for loss of crops to tapirs which would involve the regional environmental organizations and the ministry of Environment Parks Office in the resolution of this problem because conflict solution requires strong partnerships, shared goals for both wildlife and human communities and shared responsibility.

An Integrated Strategy for Conserving the Mountain Tapir (*Tapirus pinchaque*) in Paletará, Cauca, Colombia

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Because of its biological richness, Colombia is considered one of the mega diverse countries. The Cali Zoo Foundation is committed to conserving this patrimony through educational and research programs in its area of influence. Since 2003 the Zoo Foundation has been carrying out ecological studies with the mountain or woolly tapir in the zone of the Puracé National Natural Park (PPN) in Cauca Province in order to establish its conservation status (Sandoval 2005). The objectives of this study focused on determining evidence of the presence of the mountain tapir in the village of Paletará, Cauca Province, Colombia, at an altitude of 2600-3400 m, and evaluating the factors that threaten the species. In addition a study was made of the communities' perceptions regarding the species, and then actions were taken to sensitize them in valuing biodiversity. This work was concerted and executed together with the indigenous communities residing in the zone through the Indigenous Environmental Plan (PAI) group. A map was made of the vegetative groundcover based on the actual evidence of the specie's presence. Trips were made to the region in search for evidence, which was then geo-referenced. Evaluation of the threat factors was done through interviews with the community and the transporters. Workshops about valuing biodiversity and recognizing the species were held with 410 children from six schools in the region. Training in environmental diagnosis and handling field equipment was also given to five members of the PAI. The frequency of the evidence of mountain tapir presence shows a tendency to prefer high Andean forest sectors, avoiding crossing open fields. The Paletará valley, which is adjacent to the western zone of the Puracé PNN, did not have any apparent evidence, possibly due to the volcanic mountain chain, which acts as a natural barrier. On the western bank of the Cauca River in the mountains that connects with the Sotará paramo (W 76°31'75"; N 2°10'41"), there was evidence of tracks, feces and trails. The extensive cattle ranching in the natural areas of the paramo could also be a threatening factor for the mountain tapir. Similarly, forest zones being used as human camps did not have any traces of tapir. Hunting by the indigenous communities in the study area was not identified as a threatening factor due to the little interaction that exists with the species at present. The children from the region have little knowledge about the species. However, there is a great appreciation for natural resources although there are inadequate exploitation practices (agriculture and livestock). Educational materials such as informative handbooks, stickers, billboards and posters were prepared about the species and distributed in the region. The knowledge of environmental diagnosis and handling equipment will permit the members of the community to design,

execute and monitor projects that involve the knowledge, use and conservation of biodiversity. The future of the conservation of the tapir in these regions will depend on involving the communities in the government's environmental plans.

Habitat Preference and Daily Activities of the Mountain Tapir (*Tapirus pinchaque*) in Puracé National Park

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The mountain tapir (*Tapirus pinchaque*) is a species threatened by extinction (Acosta *et al*, 1996; Downer, 1997), about which there is little information in the wild. In the area of south-west of Colombia, particularly in the Puracé National Park, studies have not been carried out and could, therefore, bring to light new information about the tapir in this part of country. Studies about the relationship between animal and plant have not been tackled, for example, the preference of habitat for development of normal activities such as: sleeping, grazing or defecating. In this sense the objective of this proposal is to carry out an approach to characterize the habitat of the tapir, in association with signs of its activities. This study will take place in a sector of the NNP Puracé, which is located in the Colombian Central Mountain Range at a height from 3000 to 3600 sea-level. The study aims to define whether this species demonstrates a preference for a particular habitat type in order to conduct its daily activities, or whether, on the contrary, there is no such preference. To achieve this goal, the activity signs will be classified according to their type (foot-prints, scats resting places, paths and feeding places), counted; geographical position recorded. Two types of methodology sampling will be used where signs are found. From these, the first one will be a circular plot of 5 meter radius (PNN, WWF y CAM, 2005) for traces such as feces, resting and feeding places. The second methodology will be a sampling line of 13 x 6 m (a straight line of 13 m, sampling 3 m at each side of the line. In each area of sampling, recordings of vegetation will be made plus the collection of vegetable material. The drying and identification of the collected samples will be made in the herb garden CAUP of the Natural History Museum of the University of the Cauca.

Mountain Tapir Conservation Center, San Agustín, Colombia

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The mountain tapir (*Tapirus pinchaque*) is one of the most endangered species of the Andean region. Total wild populations probably number less than 3000 individuals. Principal causes of its decline are loss of habitat, hunting and illegal trading. There is evidence that some animals, especially young individuals, are often held by local people on their farms. This is because when a nursing female is killed, the infant is captured and kept or sold as a pet. These young animals are kept in farms as domestic animals probably until they reach the appropriated size to be killed and consumed. Recent efforts have been made to confiscate such animals by environmental authorities in certain areas of the Colombian Andes. One of these animals was a young mountain tapir held in a bathing resort, near the city of Pitalito, Huila, in the southwest of Colombia and confiscated by Corporación Autónoma Regional del Alto Magdalena (CAM; the local environmental authority) in September 2005. Officials from CAM found the animal in normal condition and sent it immediately to a farm -owned by CAM- in the city of Pitalito, where the animal was healed of its wounds and fed with an appropriate diet. A series of discussions between tapir experts and environmental authorities came to the conclusion that the animal should be kept in a naturalistic enclosure within its natural habitat. This proposal rapidly evolved into the idea of constructing a Mountain Tapir Conservation Center in which a series of educational, and research programs along with ecotourism will be developed, as part of a general project known as Guacharos-Puracé Biological Corridor. This project is focused on a natural area know as the Colombian Massif where the principal Andean rivers of the country emanate. The center will begin its activities managing the confiscated mountain tapir and starting educational activities with local people. Currently, project leaders are in the process of identifying a natural reserve where the enclosure and basic infrastructure can be constructed and where some additional components of the planned center can also be constructed in the near future. Apart from the educational, research and ecotourism activities planned at the center, this place will serve as a rescue center for confiscated animals and as a rehabilitation and reproduction center for the species. We are looking for international partners who could help in the consolidation of this initiative.

Lowland Tapir (*Tapirus terrestris*)

Is it Possible to Reintroduce the Lowland Tapir (*Tapirus terrestris*) in Tucumán?

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The lowland tapir is the largest terrestrial mammal in Argentina and has suffered a drastic reduction in its distribution area so it is currently considered an endangered species in the country. The species has been extinct in the province of Tucumán (Northwest of Argentina) since the 1950's. The Horco Molle Experimental Reserve (REHM) is a protected area of 200 hectares administered by the National University of Tucumán. The REHM borders another university reserve of more than 14.000 hectares. In the REHM there is a fenced area of 20 ha, dedicated to environmental education and the breeding and rescue of indigenous fauna. Seven tapirs live there in semi captivity along with other specimens of local fauna. Since the arrival of the first tapir in 1991, nine tapirs have been born in this facility. Three have died and one was transferred in exchange to a zoological collection. This year the Argentinean tapir holding institutions have formed an association and are developing a Studbook for the species in Argentina. The REHM is a member of this group. One of the objectives of the Argentinean group is to undertake genetic studies using the captive specimens. This group will determine the best way of managing this captive population in Argentina. Preliminary conclusions show that we have a population with three bloodlines. The REHM carries out an intense activity of environmental education on a total of more than 20,000 annual visitors. The tapir is one of the most charismatic species to be included in the environmental education. The REHM is also keen to reintroduce the tapir in the province of Tucumán. This project, first presented in the First International Tapir Symposium held in Costa Rica in 2001, presents as main technical objections, a small captive population and a favourable habitat that although relatively interconnected, constitutes a narrow strip of territory. Bringing animals from other localities where the species exists is not being considered as it may be more damaging to the species than beneficial. We are now at a point where it is necessary to look for the first breeding of captive animals, with the objective of carrying out test releases in one or two years. This length of time considers the gestation period, weaning and training of the animals. In this time the isolation enclosures can be finished, the educational campaign intensified, particularly around the periphery of the protected area selected for the first reintroduction. This first stage has a reduced cost in comparison to other similar projects, because the infrastructure and personnel are already available at REHM. The reinforcement of existent populations is not an acceptable option, for the risks of transmission of disease and inbreeding depression. The continuation of the project will depend on the results obtained in the first reintroduction and the collaboration of the members of the Argentinean captive breeding programme to donate suitable animals for reintroduction.

The Diet of Captive Lowland Tapirs (*Tapirus terrestris*) in Argentina

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In Argentina there are 10 zoological Institutions holding lowland tapirs (*Tapirus terrestris*). A survey was undertaken of captive tapir diets in these 10 institutions in six different provinces in order to analyze their feeding management and draft some working protocols. The results were presented during the first national workshop of tapir holding zoological institutions. This survey took three months and included a total of 44 tapirs (32% adult males, 34% adult females, 25% juveniles and 9% calves). In 80% of the institutions a university graduate formulates the tapir diet. Only 30% of institutions have a nutritionist. Therefore 13% of those tapirs surveyed have a diet formulated by a nutritionist and 69% of the total has a diet formulated by different kind of professional. Forty per cent of institutions have a specific area where the diets are prepared (27% of tapirs surveyed). Most of the institutions quantify the diet in any way (80%), which means that 88% of the animals receive some ingredients that are quantified. Fifty per cent of institutions (27% of captive tapirs) have ingredients that are programmed. Seventy per cent of institutions (55% of captive tapirs) fed these animals at the same time every day. In the majority of institutions the tapirs are fed during the morning (60%). Finally, the diets were analyzed with a nutrition program (Zootrition®), and all protein levels were considered adequate for the animals. 30% of the institutions (11% of captive tapirs) include mineral supplements in their diets. On average, diets are made up of 33% forage, 18% complete feed and 49% other ingredients such as grains, fruits and vegetables.

The Effectiveness of Reserves in Keeping Viable Populations of the Lowland Tapir (*Tapirus terrestris*) in Espírito Santo State, Southeastern Brazil

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Habitat loss and fragmentation represent serious threats to the persistence of biodiversity and are among the main causes of biodiversity loss in tropical forests. The state of Espírito Santo is an illustrative scenario of habitat loss and fragmentation within the Atlantic Forest, as well as the status of large mammals within this biome. The lowland tapir *Tapirus terrestris* has been registered within four protected areas of Espírito Santo. Protected areas are of paramount importance in biodiversity conservation, but suffer from many problems and threats. Population viability analysis (PVA) is an important tool to develop and evaluate management strategies for wildlife management and also to evaluate reserve network effectiveness. A PVA was run using the program VORTEX to evaluate the effectiveness of the protected areas of Espírito Santo in maintaining viable populations of the lowland tapir and to evaluate several hunting pressure scenarios. The protected areas studied were the Biological Reserve Córrego do Veado (RBCV), the Biological Reserve Córrego Grande (RBCG) and the forest remnant comprising both the Biological Reserve Sooretama and the Natural Reserve Vale do Rio Doce. Scenarios simulated the effects of demographic stochasticity, genetic stochasticity and catastrophes. Demographic parameters used as input to the model were obtained in the published scientific literature, as well as from a workshop on the conservation of *T. pinchaque*. For each reserve, 500 iterations were run using time frames of 100 and 1000 years. Hunting was modeled through the harvesting of individuals from the populations. For the remnant of Linhares scenarios with low, medium and heavy hunting pressures were modeled, while for RBCV and RBCG it was modeled the hunting of 1 individual from each. For each hunting pressure, three scenarios evaluating interval between catches were also modeled: one, three or five years. Results suggest that only the Linhares remnant effectively maintains a population of tapirs for 100 years, but the population persistence is not guaranteed for 1000 years. Sensitivity analysis suggests that increases in mortality or decreases in density severely affect species persistence in Espírito Santo. Inbreeding depression effects are felt by the population in 1000 years. RBCV and RBCG are not effective in maintaining viable populations for 100 years. Results suggest hunting as presently practised is not sustainable, and harvesting females from the populations may be particularly detrimental, even under low levels of exploitation. The model suggests that the reserve network of Espírito Santo is not effective in keeping viable populations of *Tapirus terrestris* in the long term, but management strategies can be implemented to diminish extinction risk of these populations, such as: increasing connectivity between forest remnants and education of local communities about the importance of forest remnants and of wildlife. Future strategies should include incentives for basic scientific research on the species' ecology, biology, and conservation, and the evaluation of reintroduction and translocation strategies. The enforcement of hunting regulations and laws that forbid hunting is also of paramount importance.

Feeding Ecology of the Lowland Tapir (*Tapirus terrestris*) in the Atlantic Forests of the Pontal do Paranapanema Region, São Paulo State, Brazil

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The feeding ecology of free-ranging lowland tapirs (*Tapirus terrestris*) was studied through the trial and analysis of 170 fecal samples and two stomach contents collected from May 2003 to May 2005 at Morro do Diabo State Park and surrounding forest fragments at Pontal do Paranapanema Region, São Paulo State, Brazil. The lowland tapir's diet was composed of 65.5% fibers and leaves and 34.5% of fruit and seeds. Fibers and leaves were not identified and therefore we were unable to analyze the frequency of vegetative parts. Fifty-eight different types of seeds from 23 plant families were identified in 157 samples; fifteen of them did not contain seeds. The families consumed more frequently were Arecaeae (19.6%), Myrtaceae (18.69%), Rubiaceae (12.38%), Aquifoliaceae (10.98%) and Annonaceae (5.61%). The families with the highest biomass were Arecaeae (12131.7 g), Myrtaceae (598.9 g), Caricaceae (39.5 g), Annonaceae (36.6 g) and Bromeliaceae (20.8 g). The mostly consumed fruit was the palm tree *Syagrus romanzoffiana*, by frequency and biomass (18% and 12017.6 g, respectively). Other frequently consumed fruits were *Psychotria* sp. (12.2%), *Psidium* sp.1 (11%), *Ilex* spp. (6.6%) and *Annona cacans* (5.6%). Seeds with high biomass were *Psidium guajava* (guava, 547.4 g), *Acrocomia aculeata* (114.1 g), *Psidium* sp.1 (40,5 g) and *Jaracatia spinosa* (39.5 g). The fruits of the palm tree *Syagrus romanzoffiana* are frequently consumed by tapirs and other frugivores in Neotropical Atlantic forests, being considered an important food resource

available throughout the year, including the dry season when fruit availability is limited. We registered 23 new records of fruits for the lowland tapir's diet, including *Annona cacans*, *Ilex paraguariensis*, *Ilex* spp., Asteraceae n.d., *Bromelia balansae*, Ciperaceae n.d., *Alchornea* sp. and two unidentified Euphorbiaceae, *Casearia* sp., *Cassia ferruginea*, *Senna multijuga*, *Rapanea* sp., three different *Eugenia* sp., *Gomidesia* sp., *Myrcia* sp., Polygonaceae n.d., *Columbrina glandulosa*, *Zanthoxylum* sp. and two *Solanum* sp. Among them, ten families had never been recorded before Aquifoliaceae, Asteraceae, Ciperaceae, Euphorbiaceae, Flacourtiaceae, Myrsinaceae, Polygonaceae, Rhamnaceae, Rutaceae and Solanaceae. The Levin's standardized niche breadth was 0.316 suggesting that tapirs at Pontal do Paranapanema region do not eat a wide variety of fruits; fiber and leaves were not included. Seasonal differences and fragmentation effects on lowland tapir's frugivory, seedling experiments, comparison with other studies and further statistical analyses are still being conducted, and could not be included in this abstract. This study is part of a main project with multidisciplinary researchers, to develop and establish a conservation action plan for lowland tapir in the Pontal do Paranapanema region.

The Influence of Large Herbivores on the Atlantic Forest of Morro do Diabo State Park, São Paulo State, Brazil

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This project is an innovative conservation initiative and our major goal is to investigate the role large herbivores play in shaping and maintaining the plant communities of the Atlantic Forest of Morro do Diabo State Park, the largest remnant of Atlantic Forest in the interior of São Paulo State, Brazil. Specifically, we are examining how the removal of the lowland tapir (*Tapirus terrestris*), red brocket deer (*Mazama americana*), gray brocket deer (*Mazama gouazoubira*), white-lipped peccary (*Tayassu pecari*), and collared peccary (*Tayassu tajacu*) will affect the physical structure and floristic diversity of the understory plant communities of this endangered Brazilian ecosystem. Many ecologists have documented the important roles played by large herbivores in seed dispersal, seed predation, nutrient cycling etc. but until recently few have considered what would happen if the large herbivores were removed from the system. In order to simulate the removal of these herbivores from the forests, we constructed exclosures that prevent them from foraging in selected areas. In July 2004, fifty (50) exclosures were constructed along transects in two different habitat types found in Morro do Diabo Park: 25 exclosures in secondary forest and 25 in mature forest. The distance between exclosures was 50 meters, and control plots were established 10 meters to the right from each exclosure. The materials used for the construction of the exclosure plots were wooden posts and wire chicken fence. Each exclosure measures 3X6 meters, with a height of 1 m. A 20-cm high gap was left at the bottom of the barrier to allow access to smaller animals such as agouti, armadillo, coati etc. The 1X4 m sampling area in the center of the exclosure was divided into four 1X1 m quadrants. The outer 1-m wide buffer zone is not sampled because the vegetation may be browsed from outside the exclosure. Also, this vegetation is subjected to influences of investigator traffic. Control plots measure 1X4 m. For each exclosure and control plot, two 1X1 m quadrants within the 1X4 m sampling area were chosen randomly. As a result, 2 m² of forest were sampled in each exclosure and control plot. All plants > 10 cm and with diameter < 5 cm were measured (height and diameter), separated into morphospecies and marked with PVC plaques. Each plant was assigned a reference number for analysis. Plants with height < 10 cm (considered to be seedlings) were counted. Horizontal cover will be assessed through the needle method. A wooden stick is vertically placed in the geometrical center of each 1X1 m quadrant and the number of leaves touching the stick is counted. The exact same sampling quadrants and plants are measured every six months (end of dry season in October and end of wet season in May) in order to monitor changes in forest diversity and structure over time. Three measurements were conducted since the construction of the exclosures: October 2004, May 2005, and October 2005, and this poster will be presenting our preliminary results. This project is fully funded by the Houston Zoo Inc., United States.

Lowland Tapir Footprint Identification Technique (FIT)

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The Footprint Identification Technique (FIT) is a non-invasive and cost-effective methodology developed by WildTrack, an independent research organization based in Portugal, and may produce data accurate enough for identifying individual tapirs and, consequently, censusing and monitoring wild populations. The IUCN/SSC Tapir Specialist Group (TSG) has been working hand in hand with WildTrack on the development of FIT algorithms for the four tapir species, and the main objective of this poster is to provide an update about the development of the FIT for lowland tapirs. Instead of collecting digital images of tapir footprints in the field we decided to work with captive tapirs. Several zoos and breeding facilities holding lowland tapirs in their collections in Latin America, United States, and Europe were contacted and invited to be part of this effort. A number of zoos responded to our initial invitation, including three (3) zoos and breeding facilities in the states of São Paulo, Minas Gerais, and Goiás in Brazil, two (2) zoos in Colombia (Cali Zoo and Fundación Zoológica Santacruz), one (1) zoo in Argentina (Fundación Temaikén), five (5) zoos in Europe (Parc Zoologique Branféré, Parc Zoologique d'Amnéville, Safari de Peaugres and Lisieux CERZA in France, and Chester Zoo in the United Kingdom), and three (3) zoos in the United States (Houston Zoo, Dallas Zoo, and John Ball Zoo). We asked each one of these zoos to take digital pictures of the footprints of their captive lowland tapirs following the WildTrack protocol. Most of the institutions involved are already sending their images to us, and we will soon have a large sample size with a minimum of 50 different individuals to begin analyses. Once the algorithm is developed, it will be validated in the field and widely distributed. This technique may prove to be an extremely useful tool for the work of many lowland tapir researchers worldwide. This project is fully funded by the Houston Zoo Inc., United States.

Habitat Use and Activity Pattern of Lowland Tapirs in Grande Sertão Veredas National Park, Northwestern Minas Gerais State, Brazil

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The Grande Sertão Veredas National Park (230,714.4 ha), northwestern Minas Gerais state, Brazil, is one of the most impressive reserves of Cerrado's biome. Between January 2004 and January 2005, we placed 12 camera-traps, equally in four different phytophysiognomies (Cerrado *sensu strictu*, Carrasco, Gallery forests and Veredas) intending to get data about habitat use for the medium and large size mammals community. The camera-traps were located on trails and roads, with a sampling effort of 4,019 trap days. Seventeen effective photographic recordings of tapirs (*Tapirus terrestris*) were obtained from the camera traps, with Relative Abundance Index (RAI) = 0.44. Tapirs were recorded more often in Veredas (Chi-square = 15.91315; df = 3; $P < 0.001184$), followed by Cerrado and Carrasco. There were no records in gallery forest. Some habitat variables were collected and analyzed but were not significant. No recording was obtained during the day (06:00-16:00 h), two records of crepuscular activity (16:00-18:00 h) were recorded but most recordings were made during the night, in 02:00-04:00 period. The tapirs appear to have crepuscular-nocturnal habits. Therefore, studies of long duration, with a larger number of camera traps or using radio-telemetry, should be conducted to generate information on the population status and ecology of tapirs in the important Cerrado reserve. This research project is funded by IDEA WILD, Conservation International, PUC-Minas, IBAMA & Funatura.

Effects of Human Interaction on the Frequency of "Saltlick" Use by Lowland Tapirs (*Tapirus terrestris*)

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In recent years, it has been observed that the quantity and diversity of species visiting saltlicks has diminished, which has resulted in a reduction attainment of game animals. The effect of human interaction on the frequency of use of the saltlicks by tapirs (*Tapirus terrestris*) was evaluated as a likely indicator of its impact on the availability of game. In order to analyze the relationship between the saltlicks' natural characteristics: *i*) number of geographic sites, *ii*) water and soil physicochemical composition, *iii*) distance between saltlicks, and the saltlicks' frequency of use by tapirs (*dependent variable*), parametric and non-parametric simple correlation analyses and a second order multiple regression analysis were made. In order to analyze the relationship between the human perturbing factors: distance between saltlicks and *i*) settlements, *ii*) areas of cultivation and *iii*) roads; *iv*) the frequency of visits by hunters to saltlicks, and the frequency of use of the saltlicks by tapirs, the same procedures already described were made. In every case, the values of the simple correlations between the frequency of use of the saltlicks and each natural variable and human perturbation variable were low and insignificant ($p \leq 0.05$). However, the multiple regression analysis determined that there is a high, positive and significant dependency between the saltlicks' natural variables selected and the frequency of use of the saltlicks by tapirs. This is evidenced by a 91% correlation with the frequency of use. Each human perturbation variable by itself, or even taking into account possible synergies between them, does not provide a significant correlation with the frequency of use of the saltlicks. Although the results indicate that the intensity of human interaction is not causing a clear (significant) negative effect over the frequency of use of the saltlicks by tapirs, and therefore, it would not be altering the availability of game. If we suppose, hypothetically, that twenty years ago there were 1000 tapirs in the area of study and, currently, there are only 100 because of human perturbation effects, the relative frequency of use of the different saltlicks, defined by the natural conditions or characteristics of them, should not be affected, and the result of this investigation should be the same. As a result, investigating the effect of human interaction on the various species through changes in their spatial distribution can yield results opposite to those expected. It is recommended that alternative forms of measurement of human perturbation be utilized, for example, generating variables that combine those factors that show how the human population moves toward the saltlicks. It is suggested that future studies include alternative methods to estimate the number of tapirs that frequent each saltlick. Given that part of this work determined the location, frequency of use, and relevant characteristics of a strategic resource such as saltlicks, it is suggested that the results of this work can be used to adjust the management plans of the Tikuna-Uitoto indigenous preservation.

Conservation of the Colombian Danta (*Tapirus terrestris colombianus*) - Herskovitz 1954 - in the Guajira Colombia

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This subspecies described as endemic to Colombia is the most critically threatened of all tapirs present in the country and there is little information available on it. However, a population has been reported as occurring in the Palomino corregimiento/Municipality of Dibulla/Guajira Department, which gives researchers an opportunity to learn something about it. I am currently developing the final part of a project entitled "Historical and Current Distribution of the Colombian Danta in the Municipality of Dibulla/Guajira" (financed by the Fondo Para la Acción Ambiental y la Niñez/Fundación Omacha and CI) and have developed of the location of this population in the Sierra Nevada de Santa Marta. The development of this project has permitted two things: it is the first step in planning with the environmental authorities (represented by Corpoguajira), Nativa Foundation and Defensores de la Naturaleza Foundation, the Conservation Strategy having as a base the national program for the conservation of the genus *Tapirus* in Colombia, led by the Environmental Ministry of Colombia. And secondly, recognition of the local indigenous and agricultural community inhabiting the zone as the people that made the survival of this subspecies possible in the region of Palomino. This is despite the fact that its habitat has suffered illegal cultivation, the presence of illegal armed groups and nowadays the cattle raising. This is because the majority of land inhabited by the tapir does not have any conservation status and the national government is promoting the changing of illicit cultivations to cattle raising. At the same time, with the collaboration of indigenous peoples and anthropologists who study the native communities inhabiting the zone, it has been possible to establish the paper of this "Danta" as "animal de carga" that helped to the development of these communities by bringing its flexibility and force to build stone indigenous cities as "ciudad perdida" and "pueblito" in the Sierra Nevada de Santa Marta.

Capture and Immobilization of *Tapirus terrestris* in Madre de Dios, Peru

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Between July and October 2005 7 adult free ranging tapirs (*Tapirus terrestris*) were immobilized at the Los Amigos biological station in Madre de Dios, Peru. For the captures, platforms were constructed at mineral licks within the research area. This area was selected based in data obtained via camera traps. Tapirs visit these licks frequently and based on direct observations and photos from camera traps we estimate that at least 15 individuals visit a single lick. The animals were immobilized with a dart (5 and 6 ml, Pneu-Dart Inc.) using a CO₂-powered riffle (Model 176, Pneu-Dart Inc.), which gave us a darting range of approximately 25 meters. Darts were loaded with a mixture of the narcotic Butorphanol (45-55mg/animal) and the alpha-2 Xylazine (120-150mg/animal) for an estimated weight of 200-250kg of an adult tapir. In six of the seven animals we had to supplement the anesthesia with an intramuscular injection of Ketamine (250mg). In one case we administered a second dose of Ketamine (100mg) and in a second case two doses of 300mg IM each. The reaction of the animals to the initial dose varied widely. Two of the animals went down in the same spot we darted them, while the rest of the tapirs walked between 50-300m. Induction time (time from initial drug administration to animal recumbency) ranged between 8 and 15 minutes. In three cases supplementation with ketamine was needed within few minutes after the initial dart for the animal to achieve full immobilization. No anesthetic complications were recorded during all immobilizations. Average heart rate was 60 beats / min and respiratory rate was 20/min. In one case where the respiratory rate was considered not satisfactory (14/min) a stimulant of the respiratory center (Doxopram - 10mg IM) were given, in addition Atropine (6mg IM) was administered. Anesthesia lasted between 45 and 60 minutes, which was enough time to fit a radio collar, take measurements, and collect parasites, blood and DNA samples. The anesthesia was reversed with Naltrexone (135mg) and Yohimbine (70mg) given IM. Recovery time (duration from the administration of the reversal agents until the animal was standing) was approximately 2 minutes. Four animals presented premature arousal before the reversal agent was administered. It is important to notice that all of these animals received Ketamine IM suggesting that initial anesthetic dose was insufficient and that Ketamine supplementation provided only short effect. After the administration of the reversal agents the animals recovered quickly and did not show any signs of ataxia or evident signs of sedation. Based on preliminary data, we believe that higher doses of Butorphanol and Xylazine are needed to achieve faster inductions and to avoid the need of supplementation. We suggest that Butorphanol at a dose of 65mg and Xylazine at 200mg be given to animals weighting 200-250kg. Unfortunately larger darts will be required.

Multiple Species

Comparative Behavioral Study of Two Species of Tapirs (*Tapirus bairdii* and *Tapirus indicus*)

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As tapir populations continue to decline worldwide, relatively little is known about the social structure, mating systems, population structure, and dispersal patterns of tapirs. Tapirs were historically thought to be solitary, so intraspecific interactions were not focused upon, however, current research using photo trapping and radio collars have found that tapirs are more social than originally thought. The American Zoological Association has decided to focus efforts on the preservation of Malayan and Baird's tapirs (*Tapirus indicus* and *Tapirus bairdii*), and have recommended additional research on these species. Little research has been published on the behavior of captive tapirs, and even less has been conducted regarding the differences and similarities found among species of Tapiridae, with only general behaviors compared via time budgets. Vocalizations in other Perissodactyla have been studied in detail, but despite various accounts, research on communication in Tapiridae is lacking. The only study of acoustical communication found in tapirs focused on the Lowland tapir (*Tapirus terrestris*). Infrasound, which has been found in other forest-dwellers and three species of rhinoceros, has yet to be studied in tapirs. No form of optical communication has been formally studied in tapirs, however in Equidae a large repertoire of behaviors exists. Facial expressions, leg movements, tail posture and movement, body posture and movement, and ear

position are all a part of equine communication and have been choreographed. By furthering our understanding of tapir behavior important knowledge will be provided to captive breeding programs and the management and conservation of wild populations. The purpose of this study is to aid in the understanding of Tapiridae behavior by focusing on specific behaviors such as communication. This will be done by examining the interactions between individuals, choreographing behaviors, and contrasting the similarities and differences that exist between two species of tapirs (*Tapirus bairdii* and *Tapirus indicus*). Research will be conducted at Sedgwick County Zoological Gardens. Vocalizations will be recorded at infrasonic and audible frequencies. Sampling will be conducted both opportunistically and at random for 10 minutes intervals. The time, date, individual(s) vocalizing/ present, researcher, behavioral context, and environmental conditions will be recorded. Sonograms will be created and vocalizations will be classified. The physical distance between mother and young will be estimated and each tapir's behavior will be recorded at intervals of thirty seconds using scan sampling, and will be taken for 20 minutes at a time. To choreograph behaviors and interactions between tapirs, video will be shot in five-minute intervals with a resolution of 640x480 at a rate of 30 frames per second. Movements, posturing, and facial expressions will be analyzed frame by frame to sequence each behavior. The final choreography for each behavior will be depicted by line drawings.

Characterization of Reproductive Physiology of Tapirs Using Non-Invasive Endocrine Analysis

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The future survival of the four species of tapir (*Tapirus pinchaque*, *T. terrestris* and *T. bairdii* and *T. indicus*) is questionable mostly due to habitat destruction and poaching. The lack of information on reproductive parameters decreases the ability to establish successful breeding programs and makes more difficult to design a conservation plan for the species. The purpose of this study is to develop a non-invasive technique for monitoring reproductive hormones excreted in feces of captive tapirs. The project will begin providing a hormonal database to understand better the reproductive physiology of tapirs and facilitate the development for assisted reproductive techniques for these endangered species. We will develop specific enzyme-immuno-assays (EIA) to measure steroids (testosterone, estrogens and progesterin) in four species of tapir in North American zoos to assess reproductive activity. We also will develop methods to measure adrenal steroid metabolites in feces to assess "stress" status. We would also compare hormonal levels in blood for some of the samples when possible. The project will attempt to answer the following questions: Are there any individual and/or group differences in excreted hormonal levels? Is the reproductive cycle similar among all four species? How well can fecal steroid monitoring detect estrus and pregnancy in each species? Is there a noticeable difference between blood and fecal hormonal levels?

KEYNOTE SPEAKERS

The PHVA Process: What it Means for Tapirs

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Population and Habitat Viability Assessment (PHVA) workshops are well known for bringing together a critical yet diverse combination of stakeholders in the conservation of target species. Such individuals include field biologists, academicians, governmental officials, industry representatives, land owners, local leaders and captive managers, among others. As a result of the First International Tapir Symposium in San Jose, Costa Rica, attendees of this meeting made the decision to hold a PHVA workshop for each of the four species of tapirs. This recommendation was reaffirmed at the Second International Tapir Symposium in Panama and the first PHVA was held in August, 2003, in Malaysia in support of the Malayan tapir. A second PHVA was held in October, 2004, in Colombia for mountain tapirs and in August, 2005, a third PHVA took place in Belize for Baird's tapirs. In all instances, attendees were able to identify gaps in knowledge of the species and its status in nature as well as to correct or add to the banquet of information not previously understood for each of the three targeted species. In the case of the mountain and Baird's tapirs, significant involvement by the ex-situ community was realized and much of the financial backing of these PHVAs as well as the Second and Third International Tapir Symposia came from the zoological park community. This was particularly remarkable since this group received nothing in return for this support. Later in 2006 or early 2007, a PHVA for lowland tapirs, the last species of tapir to be reviewed, will be held in Brazil and tackle issues not necessarily faced by the other three workshops. As a result of the Third Symposium, a post-workshop meeting will also be held at Temaikén Zoo to teach SPARKS, the software program used by the zoological park community, to better coordinate management of lowland tapirs living in Argentina and other range countries.

Understanding and Interpreting Tapirs in the Fossil Record

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Although fossil tapirs are rare, the few known specimens have greatly enhanced our understanding of their evolutionary history. These specimens not only document the antiquity and widespread geographic distribution of fossil tapirs, but also reveal intriguing patterns of morphological evolution – including clues about the development of their prehensile trunk through time. In this presentation I will review some of the key fossil discoveries, and discuss their importance to our understanding of the evolution of tapirs. This discussion will focus not only on what these fossils tell us, but also on analytical methods. While the fossil record has enormous potential for illuminating past events, it also has many limitations, and these must be carefully considered when investigating the meaning of fossil samples. Among the many issues to be considered are: the nature of a 'species' in the fossil record, and the consequent interpretation of skeletal variation; the reconstruction of soft anatomy (such as muscles, blood vessels, and nervous tissue) based on skeletal remains; the proper way to compare specimens in a phylogenetic framework; and the importance of the geological context of specimens, including not only the depositional environment, but also the history of the specimen from burial to discovery. Fortunately, our ability to address some of these issues is aided by recent technological and methodological advances. For example, new systematic techniques and philosophies, particularly in molecular genetics, have resulted in a much more robust phylogenetic framework in which to interpret the significance of fossils. Similarly, morphological studies have been aided by new CT scanning technologies that allow non-destructive examination of the interiors of specimens. The implementation of these new analytical resources, together with new fossil discoveries, has led to a much better understanding of the evolutionary history of the tapirs.

Monitoring Tapir Populations: Needs, Tools and Challenges

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It is my intent to present a brief revision of the problems associated with any program to monitor tapir populations, with the aim of promoting discussions to design useful strategies. I note first that the monitoring method is linked to the statistical test. The method must be such that it has a reasonable chance of detecting a change in numbers given the test (sensitivity). I explain briefly how sensitivity is related to sampling effort and why is it important to estimate the sensitivity of the method under a given monitoring program. Next, I consider four desirable properties of the monitoring method and make three assumptions about the tapir population. The properties are: 1) that the coefficient of variation in the data be independent of place and population size; 2) that the method offer more information than just a change in numbers; 3) that the effort to reach an adequate level of sensitivity be reasonable; and 4) that the method be insensitivity to observer's effect. The assumptions are: 1) that we know reasonably well the initial population size; 2) that density of tapirs is homogeneous throughout the population range; and 3) that we are able to identify all tapirs in the population individually. I then review the following methods: animal counts transects, evidence counts transects, track identification, camera traps, radio-telemetry, DNA fingerprinting and combinations of the above methods. Last, I evaluate each method, based on the abovementioned desirable properties, to determine how well these properties are met and highlight the problems associated with each.

The View of the Nassa Wesh Indigenous People about the Conservation of the Mountain Tapir in Southern Tolima, Colombia

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The recent *Forest Law* proposed by the Colombian government for the commercial use of forests in Colombia has generated concern among the Nassa Wesh indigenous people, as well as many others. This is because of its expected negative effects on mountain tapir populations and their natural habitat. This keynote speech will address the thinking of this indigenous group on such laws and our experiences in the region. Additionally, we want to discuss mountain tapir conservation actions in our region, and how such actions should be clearly integrated into the design and development of communal and productive projects. Such projects need to motivate effective participation from a larger number of people, if we want to face up to the challenge of avoiding mountain tapir extinction in Colombia.

WORKSHOPS

Workshop 1: Action Planning for Tapir Conservation

Organizer: Patrícia Medici, Brazil

A Range-Wide Status Analysis of Lowland Tapir (*Tapirus terrestris*) and White-lipped Peccary (*Tayassu pecari*): Preliminary Results for Lowland Tapirs and Conservation Implications

Andrew Taber, S. Chalukian, K. Minkowski, E. Sanderson, M. Altrichter, M. Antúnez, G. Ayala, H. Beck, R. Bodmer, J. L. Cartes, C. Gomez, H. Gómez, B. de Thoisy, L. Emmons, N. Estrada, L. Flamarion B. Oliveira, J. Fragoso, R. Garcia, I. Goldstein, H. Gómez, A. Keuroghlian, K. Ledesma, L. Lizárraga, D. Lizcano, C. Lozano, P. Medici, O. Montenegro, E. A. Moraes Jr., N. Neris, A. Noss, J. A. Palacio Vieira, A. Paviolo, P. Perovic, R. Reyna-Hurtado, J. Radachowsky, J. Rodriguez Oriz, D. Rumiz, L. Salas, A. Sarmiento Dueñas, J. Sarria Perea, K. Schiaffino, M. Tobler, V. Utreras, D. Varela, E. Ventincinque, R. Wallace, and Zapata Rios.

This ongoing project is a key component (Action 12) of the goal of developing National Action Plans for tapir conservation and management for all range countries in the 2004-2005 TSG Plan for Action that came out of the Second International Tapir Symposium in Panama. This exercise is being jointly undertaken by the Pigs, Peccaries and Hippos Specialist Groups (PPHSG) of the IUCN/SSC, with technical GIS support from the Wildlife Conservation Society. Early in 2004, members of both specialist groups, and other experts, met and determined to undertake this task jointly for both species. Given that there is a large overlap in the pool of experts for both species, this was an opportunity to combine efforts and thus provide a cost savings to both groups. In addition, it was felt that since the two species' ranges overlap enormously and they are ecologically similar, as large terrestrial herbivores and frugivores, we hoped this would provide an opportunity to compare and contrast threats and conservation needs in hopes of identifying opportunities for synergies between both groups. From September 2004 to April 2005 data forms and maps filled out by the experts were compiled and merged into a geographical information system. In total, 43 experts contributed data on tapirs. In April a workshop was held in Santa Cruz, Bolivia, where expert data on (i) historical range, (ii) areas for which expert knowledge were available or lacking, (iii) all points of presence over the past twenty years, (iv) current distribution and local status across ranges, and (v) key areas for conservation were reviewed and refined. In addition, conservation implications were discussed and prioritized. The current area of distribution for lowland tapirs was estimated in 11,174,262 km². Four categories were considered: Stable (5,829,392 km²); in Rapid Decline (2,277,941 km²); Fragmented (3,040,838 km²), and Small Isolated (26,090 km²) populations. These and other preliminary results will be presented along with conservation planning implications.

Distribution Models and Conservation Perspectives for Lowland Tapir in Bolivia

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The status of the lowland tapir (*Tapirus terrestris*) has been the focus of several analyses by the IUCN TSG and allies, including the 'range-wide priority-setting workshop' held last year in Santa Cruz de la Sierra. This recent assessment suggested that Bolivia contributes about 7% of the total tapir range (780,000 km² / 11 million km² throughout the continent) and 10% of the extent presumed as good or 'stable' condition (600,000 / 5.8 million km²). However, it is difficult to compare the population status and extent between countries or regions due to the unequal availability of point data and relevant geographic layers. For this presentation, we examine point data and habitat distribution models for tapirs in Bolivia to help developing the species action plan. From our field observations, the literature, and contributions of fellow researchers we compiled some 150 geo-referenced tapir records dated within the last 15 years. Data points were plotted in ArcView and overlapped to several geographic information layers such as altitude, vegetation, and climate to explore potential limiting factors. The maximum elevation recorded was about 2,400 m and the lowest annual mean temperature was 10°C in the Andean slopes of La Paz and Cochabamba, while surveys at higher elevations in the same regions did not render tapir records. The lowest annual precipitation (500 mm) and longest dry season (7 months) corresponded to the driest sites of the Chaco. This suggests that below certain elevation in the Andes, tapirs could potentially occur in any natural area of eastern Bolivia. We also examined a digital model of the conservation status of Bolivia developed by WCS in La Paz (J.C. Ledezma and L. Painter) which takes into account human population density, road/river access, intensive agriculture, electric lights, and frequency of fires to indicate disturbance. These variables combined in a standard scale produced values from 0 (critical) to 100 (best condition) for all the 1 by 1 km cells of the Bolivian map (~1.1 million of them). Most of current tapir records (~120) had cell values between 100 and 80, and fell mainly into protected areas,

forestry concessions, indigenous territories, and large ranches. These areas represent large habitat blocks that become important conservation units for tapirs. The other 30 sites had conservation values below 80, and while in some of them tapirs are no longer present, others represented small private reserves and park borders which still have tapirs but are highly influenced by roads and human encroachment. Other models of habitat status we examined were less useful because of their coarse grain or deficient geographic layers they used. We see the need to develop models that better reflect the effects of hunting on the distribution and abundance of tapirs. Also, we recommend conducting field studies to assess the tolerance of tapir populations under different human pressures and landscape uses.

Workshop 2: Fundraising

Organizers: Patrícia Medici, Brazil & William Konstant, United States

Developing an Overall Fundraising Strategy to Support IUCN/SSC Tapir Specialist Group Programs

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The Tapir Specialist Group (TSG) has established itself as one of the best coordinated teams of biologists and conservationists within IUCN – The World Conservation Union’s Species Survival Commission (SSC). Over the last several years the TSG has organized three international symposia, conducted conservation workshops for three of the four known tapir species, and has maintained effective communication with its membership through an organized international structure, the establishment of focal committees, and the regular distribution of an informative newsletter. As a result of all these efforts, the TSG has also begun to achieve greater success in identifying sources of financial support for its activities and is now poised to take that success to a higher level. This is essentially a four-part presentation. Part 1 puts tapir conservation in perspective with regard to biodiversity conservation. Part 2 examines the basic principles of soliciting support: 1) stating the problems and objectives; 2) evaluating what has been done to date to address them; 3) explaining the strategy for the work proposed; 4) determining what resources are necessary to accomplish the job; and 5) convincing the prospective donor that you or your team are best qualified to do the job. Part 3 examines the range of potential support mechanisms. And part 4 discusses how best to use the strengths and structure of the IUCN/SSC TSG to implement recommendations from recent workshops and the soon-to-be-revised Tapir Conservation Action Plan.

Competition between Tapirs and Top Predators: Tigers, Andean Bears and Jaguars

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All species of tapirs are threatened and half of them are considered endangered. Tapirs are large mammals playing a critical role in the ecosystems as seed dispersers, seed predators, and as herbivores allocating biomass and nutrients. But tapirs are rare and poorly studied species, usually confused with hippos, anteaters, capybaras and pigs. Funding resources for animal research and conservation are scarce and becoming more competitive in the last few years. As tapir researchers and conservationists we have to work harder to get funds, media and governments’ attention to justify the urgency for investigation in the tapir’s natural history and the status of their populations. Researchers of lowland and Baird’s tapirs have to compete for funding against jaguar projects, Malayan tapirs projects against tiger projects, and mountain tapirs against Andean bears. All of them top predators, easily recognized species by the public and normally considered the most charismatic species that attract attention and funding easily. This paper compares the development of tapir research in the last ten years against that for top predators and charismatic species by comparing the numbers and focus of scientific articles published in journals in the last decade. From the comparison some knowledge gaps, patterns and trends are identified.

Workshop 3: Confiscated Tapirs and Rehabilitation Centers

Organizer: Rick Barongi, United States

A by-product of hunting and over development is causing more wildlife to come into private hands as orphans and exotic pets. While it is illegal in most countries to possess any wild caught animals (especially endangered species) without proper documentation these regulations are rarely enforced. Few large forest mammals are as easy as tapirs (*Tapirus spp.*) to capture and acclimate into a captive situation. Most cases are a result of a young tapir being taken from a dead mother that was shot by local hunters. Survivability is dependent on the age and condition of the orphaned animal but in the cases where they do survive they are either sold as pets or raised for food. Confiscation of these orphaned tapirs is not usually enforced, as local authorities do not have the facilities to care for the animals or they are reluctant to move the animal to a city zoo or wildlife rehabilitation center (if one is even available). Quite often there is disagreement as to the disposition of these tapirs and territoriality and political issues prevent any solutions that would be in the best interest of the particular animal. This tapir confiscation session is not intended to address the complex issue of wildlife protection in range countries. What we can do is develop guidelines and resources for local wildlife authorities to make the best decision with regards to the future health and well being of these orphaned animals. As more and more tapir habitat is encroached upon by local populations and international development, there will no doubt be more situations where the IUCN/SSC Tapir Specialist Group (TSG) and local zoo and field biologists will be asked to assist in the confiscation and disposition of a tapir. It is imperative that these groups develop and knowledge and respect for each other's capabilities to ensure the best future for each confiscated tapir. To initiate the discussion we will review two recent case studies of confiscated tapirs in Colombia and Panama and the different strategies and rationales involved in each case.

Suggested Topics for Discussion:

- Reintroduction objectives (realistic or philosophical)
- Captive management objectives
- Conservation messages
- Species welfare versus individual animal welfare
- Commercial implications of confiscations
- Communication and cooperation between field and zoo professionals
- Protocols and guidelines for confiscated tapirs
- Local wildlife laws and awareness campaigns
- Bottle rearing and veterinary protocols

Workshop 4: Tapir Management - Development of Re-Introduction and Translocation Protocols

Organizer: Siân S. Waters, United Kingdom

The development of reintroduction/translocation guidelines for tapirs in collaboration with the IUCN/SSC Reintroduction Specialist Group is proposed. A short introduction to the IUCN/SSC Reintroduction Specialist Group and its work will be followed by an examination of the *IUCN/SSC RSG Guidelines for Non-Human Primate Reintroductions* (Baker, 2002) developed by a multi-disciplinary taskforce in 2002. These guidelines represent the blueprint which reintroduction guidelines for other species are requested to follow, but of course will vary in their emphasis according to species. Symposium participants with experiences of reintroducing or translocating large ungulates will be encouraged to relate their experiences. The reasons for the reintroduction/ translocation of tapirs will then be discussed as a group and the first step in the process of developing the guidelines will be the formulation of a small taskforce of experts who will be responsible for the formulation of guidelines under their topic of expertise.

Workshop 5: Human/Tapir Conflicts

Organizers: Siân S. Waters, United Kingdom, Diego J. Lizcano, Colombia & Silvia Chalukian, Argentina

Human/Wildlife Conflict - What's All the Fuss About?

Siân S. Waters

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Human wildlife conflict has been identified by IUCN as one of the conservation issues of the 21st century. As human development encroaches on wild habitats, people and wildlife come into contact more frequently – sometimes with fatal consequences. These encounters often lead to the death of the individual or individuals of the species concerned and, in serious incidents, human deaths have been recorded. They can also lead to severe economic loss for subsistence farmers in the developing world as well as to fears for their and their family's safety. This phenomenon leads to negative perceptions of wildlife and reluctance to conserve it. This workshop will endeavour to assess the extent of human/tapir conflict (HTC) in South and Central America and Southeast Asia and a number of examples will be presented to demonstrate that it does occur. Whether it is a serious problem for tapir conservation will be discussed during the course of the workshop.

Human/Tapir Conflict in the Andes

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Los Nevados National Park constitutes the northernmost limit for mountain tapir distribution in the central Andes of Colombia and the biggest protected area in the coffee-growing region. Within the park, on the western side 20 families live. These families were there before the establishment of the park in the early 70s. They work in the area cropping potatoes in the ecotone phase between forest and paramo and carrying out cattle ranching in the Paramo region. In the period between 2001 and 2004, five cases of mountain tapirs destroying crops were reported by *campesinos* that involved the killing of two mountain tapirs. *Campesinos* have reacted to the problem in several ways without completely successful results. We propose several alternatives to be tested in the field and several suggestions for mitigating this conflict. Conflict resolution requires strong partnerships, shared goals for both wildlife and human communities and shared responsibility. Each solution must be worked on as a case-by-case basis, to fit a unique set of ecological, cultural and economic circumstances. There is no universal panacea, but similar principles do apply to most problems.

Impact of Cattle on Tapirs in the Yungas Forest, Northwestern Argentina

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In Argentina's northwestern forests, tapirs are found in the most extensive habitat for their survival, but they share it with cattle that free-range over almost the entire region. Although some scientists agree about the negative impact caused by cattle ranching on natural ecosystems, there are few studies regarding this topic. Ranching not only impacts tapirs because of human activities (disturbance, dogs, hunting), but the cattle itself might have direct effects on them. El Rey National Park, surrounded by private lands mostly dedicated to cattle ranching, was a ranch until 1948. Inside the NP, a considerable

number of wild cattle remain within the forest. We evaluated cattle impact *per se* on tapirs' habitat use in the NP, and ranching activity impact on two nearby properties, compared with habitat use in areas without cattle inside the NP. We found significant statistical differences in habitat use ($X^2=155,68$, $P < 0,001$, $gl=2$), the areas without cattle being used more than expected by tapirs, and those areas with wild cattle and ranching activity being less used. This suggests that the presence of cattle presence affects tapirs. Interference, competition and disease have been proposed as the possible causes of impact.

Impacts of Irrigated Plantations of Sugar Cane and Citrus Fruit on Lowland Tapirs in Jujuy Province, Argentina

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Calilegua National Park, of about 76.000 ha, has adjacent boundaries with an agro- industrial company farming 37.000 ha of sugar cane and citrus. A large, quite well conserved area of the Yungas forest lies between the area of cultivation and the National Park. In the north and south of the Park, the company has an irrigation system consisting of deep, wide concrete canals, currently of 1,400 km length. Most of the canals are made of concrete, reaching sedimentation areas ("desarenador") before they go into turbines or steep distribution canals. The walls of the canals are almost vertical, of 1-3.5 m wide and 0.5-3.5 m deep, and have a curb, 10-15 cm above the soil level. A number of wild animals have been found dead in these canals, suggesting they are a barrier that hinders or prevents animals' movement between the National Park and the remnant forest. Near the sedimentation areas, the canals are cleaned, resulting in dumps of dead animals. Results of tapir mortalities from direct, non-systematic observations and secondary references from four sites over seven years are presented. A total of 91 individuals of 20 wild and one domestic species was recorded. Fifteen of these individuals were tapirs. Amongst them, an individual, apparently dragged into one of the electric generator's turbines, causing considerable damage; and another individual whose hooves were worn down from apparently trying to escape the canal. Methods that reduce the depth and speed of the water could be relatively cheap alternatives to help solve this problem.

Conflicts between Subsistence Farmers and Malayan Tapir in Sumatra

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Human-tapir conflict does occur in Sumatra, but there is little recent information available both regarding the number of cases and the scope of the problem. Conflict has been recorded in both protected and un-protected areas in central Sumatra. Malayan tapirs are noted as a pest species in several areas such as Bengkulu, Jambi, South and West Sumatra region. In these areas, tapirs strip bark from rubber trees and raid watermelon and gambir crops. Trade in both meat and tapir parts or live individuals have also been recorded recently. This is a new development as, traditionally, tapirs were never hunted in Sumatra due to their unclean status for Muslims. However, due to crop raiding by tapirs on subsistence farms, farmers are more inclined to protect their land by setting snares and occasionally using firearms and are thus able to supply the market for tapir meat.

Workshop 6: Tapir Husbandry and Captive Management in Latin America

Organizers: Viviana Quse, Argentina, & Alberto Mendoza, Mexico/United States

Workshop 7: TSG Plans for Action 2006-2007

Bengt Holst

Director of Conservation and Science, Copenhagen Zoo, Denmark
Member, IUCN/SSC Tapir Specialist Group (TSG)
Convener, IUCN/SSC Conservation Breeding Specialist Group (CBSG) - Europe Network

Patrícia Medici

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Chair, IUCN/SSC Tapir Specialist Group (TSG)
Convener, IUCN/SSC Conservation Breeding Specialist Group (CBSG) - Brazil Network

The TSG Plans for Action Workshop will set short-term goals and actions for the Tapir Specialist Group. We expect that the main outcome of this workshop will be a list of priority actions that the TSG should put into practice during the next two years (2006-2007) in order to be more effective in terms of tapir conservation worldwide. The main questions should be "What should we do as a group?" and "What actions should we take to be more effective in terms of tapir conservation?". It is important that you keep in mind that we will be focusing on the function and short-term activities of the TSG itself. Long-term issues surrounding the conservation of the four tapir species are being carefully addressed in the process of revising and updating the first edition of the IUCN/SSC *Tapir Status Survey and Conservation Action Plan* (1997). Therefore, we would like to ask each one of our participants to prepare a list of **5 PRIORITY ISSUES** you think that the TSG should be addressing over the next two years. During the workshop we will be working on these issues and developing short-term goals and priority actions to address them. Please think about it carefully, prepare your list in advance of the workshop, and make sure to bring it with you on Monday, Jan. 30. Bengt Holst and Patrícia Medici, both officers of the IUCN/SSC Conservation Breeding Specialist Group (CBSG) will guide us in the process of identifying the actions we will need to take in order to address the issues listed by the participants.