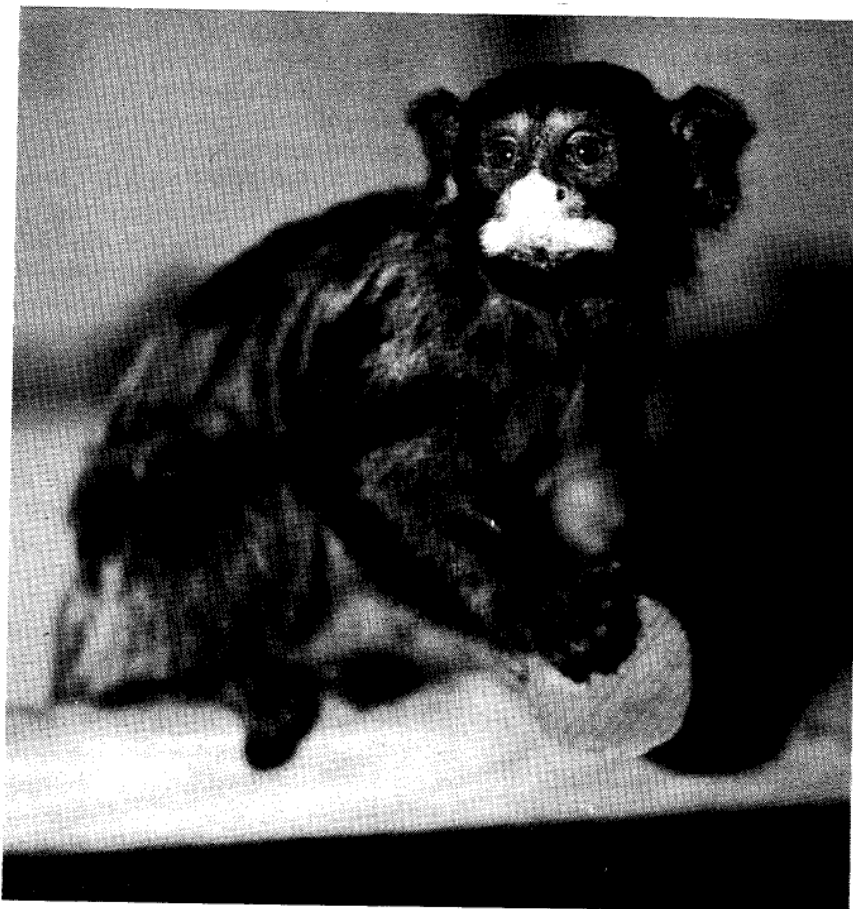


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Articles

LA DIVERSIDAD DE PLATIRRINOS FOSILES EN LA PATAGONIA

La sistemática de los platirrininos actuales ha sido objeto de renovadas controversias, que aún hoy distan de ser esclarecidas. La necesidad de considerar las afinidades filogenéticas, permite emplear un recurso de gran importancia, por cuanto los fósiles ofrecen una base de conocimientos prioritaria, al momento de interpretar las vinculaciones entre las formas actuales.

Al tratar de organizar las tendencias evolutivas del infraorden Platyrrhini, se vieron implicadas aún mayores dificultades. Tal es el ejemplo de los grupos *Cebus/Saimiri* y *Aotus/Callicebus*, que hasta la fecha resultan los más complejos a la hora de incluirlos en jerarquías taxonómicas superiores; sus afinidades son el punto más débil en la sistemática de los platirrininos vivos (Ford, 1986; 1992; Hershkovitz, 1977; Rosenberger, 1981).

Este panorama se ve reflejado en parte, en los registros fósiles de Patagonia, que se han incrementado notablemente en las últimas dos décadas, debido fundamentalmente al aporte de las numerosas expediciones paleontológicas conjuntas, realizadas por la State University of New York (Stony Brook) y el Museo Argentino de Ciencias Naturales (Buenos Aires), dirigidas por el Dr. John G. Fleagle.

Tal vez el platirrinino fósil sudamericano más renombrado sea *Homunculus patagonicus*, descrito a fines del pasado siglo por Ameghino (1891) y retomado como objeto de estudio en reiteradas oportunidades (Bluntschli, 1931; Rusconi, 1935; Hershkovitz, 1981, 1984; Tauber, 1991). Este primate ha sido comparado con los actuales *Aotus*, *Callicebus*, *Alouatta* y *Pithecia*, dando lugar a diferentes concepciones que se ven enfrentadas por la evidente disparidad de estos mencionados géneros actuales, en cuanto a afinidades taxonómicas y, consecuentemente, morfológicas. Se registran importantes materiales asignados a *Homunculus*, incluyendo partes craneales, dentarias y postcraneales, desde lo cual puede inferirse un animal diurno, con alimentación predominantemente insectívora y ciertas particularidades en la dentición que lo diferencian de los restantes platirrininos (Tejedor, en

preparación). La locomoción inferida del material postcraneal es poco clara, por cuanto el significado de los caracteres no implica un único hábito locomotor; sin embargo, puede sugerirse una tendencia al abandono del cuadrupedalismo horizontal estricto, por la utilización de soportes más verticales que requieren hábitos trepadores e incluso saltadores (Ford, 1990). *Homunculus* procede de depósitos sedimentarios asignados a la edad-mamífero Santacrucense (Mioceno inferior) en la zona costera de la Provincia de Santa Cruz, datados entre 18 y 15 Ma. (Marshall *et al.*, 1986).

Dolichocebus gaimanensis, procedente de la localidad de Gaiman, Provincia de Chubut, se conoce a partir de un cráneo deformado parcialmente, sin dentición ni mandíbula (Bordas, 1942; Kraglievich, 1951), que se asemeja estrechamente a *Saimiri*, por compartir, entre otros caracteres, una fenestra interorbitaria derivada y compartida sólo por estos dos géneros, además de poseer ambos un cráneo dolicocefalo (Rosenberger, 1979; Rosenberger y Fleagle, 1981). Completan el conocimiento de esta especie fósil, algunos dientes aislados cuyas afinidades con *Saimiri* y *Aotus* (Fleagle y Bown, 1983) sugieren que las primitivas características de estos taxa actuales, bien podrían significar una larga historia evolutiva con relativa independencia respecto de otros linajes de platirrininos. De la misma localidad se conserva un astrágalo que fue provisionalmente asignado a *Dolichocebus*. El fragmento posee marcadas semejanzas con *Aotus*, *Callicebus*, *Cebus* y *Saimiri* (Gebo y Simons, 1987). Se infiere un tipo de locomoción cuadrúpeda arborícola con alguna predisposición al hábito saltador.

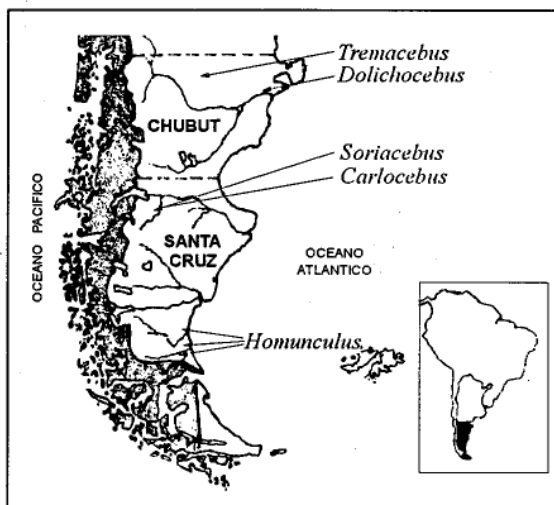


Figura 1. Ubicación geográfica de las localidades principales de platirrininos fósiles en las Provincias de Chubut y Santa Cruz, Argentina.

En la localidad de Sacanana, de la misma Provincia de Chubut, se recuperó un cráneo algo deteriorado y sin mandíbula (Rusconi, 1935), asignado a *Tremacebus harringtoni* (Hershkovitz, 1974). Sus características lo vinculan con el mono nocturno *Aotus*, fundamentalmente en el gran desarrollo de las órbitas (Rosenberger y Fleagle, 1981), aunque desafortunadamente no se preservan restos dentarios asociados al cráneo tipo; sólo conserva fragmentos de molares superiores que pueden compararse a *Callicebus* (Rosenberger y Fleagle, 1981). Sin embargo, de la misma localidad, se recuperó una mandíbula parcial izquierda con P₄-M₁, cuyas afinidades son inciertas, aunque posee caracteres primitivos que podrían eventualmente compararse con aquellas retenciones primitivas de *Aotus*, *Callicebus*, *Saimiri* y *Callimico* (Fleagle y Bown, 1983).

Dolichocebus y *Tremacebus* se registran para la edad-mamífero Colhuahuapense (19 a 18 Ma., *sensu* Marshall *et al.*, 1986), con ciertas reservas para la localidad de Sacanana (Bown, com. pers.).

La Formación Pinturas, al noroeste de la Provincia de Santa Cruz, arrojó evidencias fósiles de platirrininos de aspectos muy particulares. Se recuperaron dos nuevos géneros y cuatro especies cuyas afinidades con los restantes platirrininos, fósiles o actuales, son en gran parte inciertas (Fleagle, 1990; Fleagle *et al.*, 1987; Kay, 1990; Rosenberger *et al.*, 1990).

Carlocebus carmenensis y *C.intermedius* se conocen a partir de restos mandibulares, dentarios y maxilares, denotando algunos interesantes caracteres tales como, un gran hipocono sobre P³⁻⁴, amplios molares superiores con marcado cingulo lingual, relativamente pequeños incisivos, caninos y premolares anteriores inferiores, en comparación con P₄-M₃ (Fleagle, 1990). *Carlocebus* posee cuspides relativamente bajas y redondeadas, sugiriendo hábitos alimenticios omnívoros; ambas especies difieren en tamaño pero no en morfología aparente, siendo *C.carmenensis* considerablemente mayor.

Soriacebus ameghinorum (Fig. 2) y *S.adrianae* se presentan como las dos especies más intrigantes de Patagonia, debido a su particular morfología que dificulta las comparaciones con otros platirrininos fósiles o actuales. Estos dos primates difieren en tamaño, siendo menor *S.adrianae*. La dentición ha sido comparada con aquella de los callitrichinos (Fleagle *et al.*, 1987) y pithecininos (Rosenberger *et al.*, 1990), en lo que concierne a los diéntes posteriores y anteriores, respectivamente. La

disposición de los incisivos inferiores es escalonada, ubicándose los centrales más anteriormente, sin formar un arco, como es típico en muchos platirrininos. P₂ es de gran tamaño y unicuspid, en tanto P₃₋₄ son considerablemente menores. Los premolares superiores difieren de todos los restantes platirrininos por poseer tres raíces. Los molares inferiores fueron comparados con aquellos de los callitrichinos en su morfología general y la oblicuidad de la cresta posterior del trigónido. Los caracteres presentes en *Soriacebus* desencadenan un intrincado problema sistemático, del cual se desprenden las hipótesis mencionadas. La alternativa propuesta por Kay (1990), sostiene que *Soriacebus* es el taxón hermano de los restantes platirrininos, significando que los caracteres comparables a algún mono actual del Nuevo Mundo han tenido lugar en forma independiente.

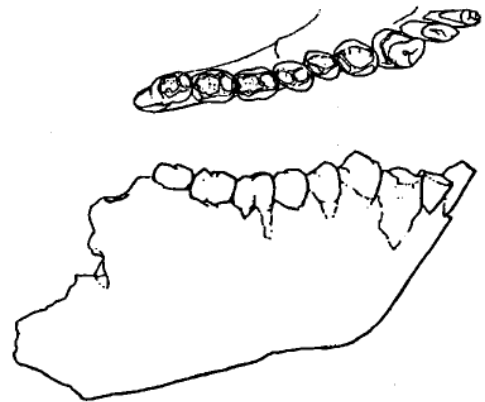


Figura 2. *Soriacebus ameghinorum*, procedente de la Formación Pinturas, Provincia de Santa Cruz, Argentina. Extraído de Fleagle (1988).

Se registraron también en Pinturas, fragmentos de una escápula y ulna, no asignados a género o especie alguna (Anapol y Fleagle, 1988). El peso corporal de este espécimen debió ser de unos 3 a 6 kg bastante mayor que el inferido para el astrágalo de Gaiman y el material postcranial de *Homunculus*. Las estimaciones lo acercan a la talla de *Cebus apella*, evidenciando un comportamiento locomotor no estrictamente cuadrúpedo y arborícola, sino también un incremento en el uso de los miembros anteriores para trepar, comparable a *Alouatta* y *Lagothrix* (Anapol y Fleagle, 1988). La antigüedad para estos sedimentos de Pinturas, se estima en alrededor de 17 Ma (Fleagle, com. pers.).

En un intento de comparar los fósiles de primates patagónicos, deberíamos diferenciar *Dolichocebus* y *Tremacebus*, sin vinculaciones aparentes entre ellos. Las similitudes respectivas con *Saimiri* y

Aotus podrían indicarnos la gran antigüedad de estos dos linajes actuales sumado a una relativa independencia evolutiva. Esto quizás podría arrojar luz para el esclarecimiento de la sistemática de los actuales platirrininos, más aún se tratáramos de confrontar adecuadas muestras de taxa vivientes con el material fósil disponible, considerando que la taxonomía debe construirse sobre bases filogenéticas.

El simple hecho de la falta de consenso acerca de las afinidades filogenéticas de los platirrininos actuales, torna más difícil la situación de los fósiles patagónicos. Si dedujéramos algunas cosas con esta restringida información que nos proporcionan los materiales fósiles, arribaríamos a una pretendida sencilla respuesta. *Aotus*, *Callicebus* y *Saimiri*, incluyendo también *Cebus* y callitrichinos (*Callithrix*, *Cebuella*, *Leontopithecus*, *Saguinus* y *Callimico*), aparecen en el primer plano de las comparaciones, significando una permanente insistencia de atender a sus primitivos caracteres retenidos, exceptuando a los callitrichinos. Estos últimos, que considero absolutamente derivados, nos indicarían tal vez, que la historia evolutiva de los platirrininos que hoy perduran, tuvo en común mucho más de lo que las filogenias propuestas hayan evaluado. *Soriacebus*, que ciertamente posee algunos caracteres callitrichinos, nos da una lección de esto, de nuestro aún escaso conocimiento sobre la filogenia de los monos del Nuevo Mundo, y por lo que debemos seguir trabajando y reunir los esfuerzos en todos los ámbitos de esta investigación.

Agradecimientos: A los Drs. John G. Fleagle y José F. Bonaparte por permitirme participar en las expediciones y acceder al material fósil.

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ANÁLISIS POBLACIONAL DEL PICHICO PECHO ANARANJADO, *SAGUINUS LABIATUS*, EN EL SUR ORIENTE PERUANO

Introducción

Los estudios ecológicos referidos a la dinámica poblacional de *Saguinus labiatus* en el Perú, son escasos. Los reportes preliminares incluyen ciertos aspectos de la dinámica poblacional y su estado de conservación (Aquino y Castro, 1989; Encarnación y Castro, 1990; Castro *et al.*, 1990; Valverde *et al.*, 1990; Heltne y Encarnación, 1990; Aquino y Encarnación, 1994). Otros, mayormente proceden de la Amazonia de Bolivia (Yoneda, 1981, 1984; Pook y Pook, 1982; Freese *et al.*, 1982; Buchanan-Smith, 1990, 1991).

Como una contribución para el manejo y la conservación de la especie, se ofrece un breve análisis sobre densidad poblacional, tamaño de grupo, composición social y estructura poblacional. Los estudios de campo fueron conducidos en el sur oriente del Perú, entre las cuencas de los ríos Acre y Tahuamanú (Fig. 1).

Metodología

La densidad poblacional fue estimada en una área de 3.4 km² correspondiente a bosque moderadamente alterado situado en la localidad de

San Lorenzo, margen derecha del río Tahuamanú. Los métodos de censo fueron: 1) mapeo o representación gráfica de los grupos; y 2) captura de grupos familiares para facilitar los registros del tamaño de grupo y la composición social. El procedimiento seguido fue el descrito por Encarnación *et al.* (1990) para la captura de callitricidos con ligeras modificaciones.

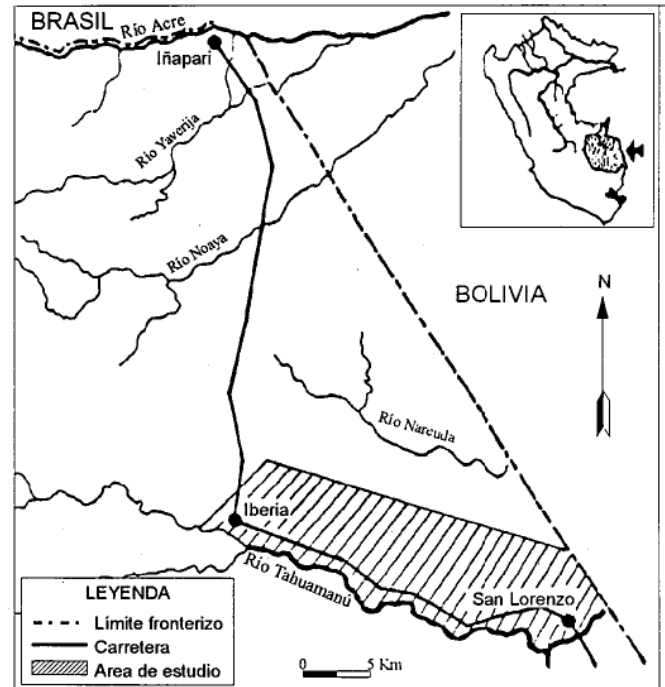


Figura 1. Las áreas de estudio entre los ríos Tahuamanú y Acre.

La morfometría fue registrada de acuerdo a la metodología seguida por Soini y Soini (1990a) con énfasis en el peso corporal y longitud total. Las edades fueron estimadas considerando la longitud tomada desde la base de la encía, y el estado del canino, la presencia o ausencia de molares, y el desarrollo dentario. Adicionalmente fueron considerados la posición y tamaño de los testes, grado de pigmentación del escroto, condición reproductiva, tamaño y grado de pigmentación de la vulva (Snowdon y Soini, 1988; Soini y Soini, 1990a, 1990b).

El tamaño de grupo fue obtenido del examen de nueve grupos familiares capturados en 3.4 km² de la localidad de San Lorenzo, y observación de otros 65 grupos familiares hasta Iberia. Mientras que la organización social y estructura poblacional fueron determinadas mediante el análisis de 38 grupos completos capturados.

Categorías de Edad

Según lo descrito por Snowden y Soini (1988) y Soini y Soini (1990a, 1990b) definimos cinco categorías de edad:

Adultos (A). El rango de tamaño y peso para adultos fue de 572-663 mm y 400-610 g, respectivamente. Respecto al peso, existe dimorfismo sexual: es decir, las hembras presentan mayor peso que los machos (diferencia significativa al 95%). Similarmente, las hembras tuvieron mayor tamaño que los machos, aunque de acuerdo al análisis estadístico no hubieron diferencias significativas (Cuadro 1). *Sub-adultos (SA)*. El tamaño y peso de los sub-adultos varió de 522 a 616 mm y de 350 a 490 g, respectivamente. Los machos con mayor peso que las hembras, y en relación al tamaño ambos sexos presentan igual longitud (Cuadro 1). *Juveniles (J)*. El tamaño y peso de los juveniles varió de 505 a 592 mm y de 230 a 370 g, respectivamente. Las hembras presentan mayor peso y longitud (Cuadro 1). *Infantes 2 (I2)*. El tamaño y peso de los infantes 2 varió de 429 a 553 mm y de 160 a 275 g, respectivamente. Las hembras con mayor peso que los machos, mientras que los machos con mayor longitud que las hembras (Cuadro 1). *Infantes 1 (I1)*. El tamaño y peso de los infantes 1 varió entre 215 a 318 mm y de 40 a 120 g, respectivamente. Las hembras con mayor peso y longitud que los machos (Cuadro 1).

Tamaño de Grupo, Composición Social y Estructura Poblacional

Del análisis de 65 grupos familiares completos e incompletos capturados de *S. labiatus*, se registró un rango de variación en el tamaño de grupo de 2 a 10 individuos, la moda de 7 individuos y el tamaño promedio de 6.1 individuos/grupo. En cambio, para el área de 3.4 km², el tamaño promedio de los nueve grupos fue de 6.9 individuos/grupo (Cuadro 2).

El tamaño promedio de grupo difiere con lo reportado por Yoneda (1981, 1984), Pook y Pook (1982), Freese *et al.* (1982), Castro *et al.* (1990), Encarnación y Castro (1990), y Valverde *et al.* (1990) (Cuadro 2). Es decir, están fuera del intervalo registrado entre 6.1 a 6.9, a excepción de los registros de Buchanan-Smith (1990, 1991) y Castro (citado por Sussman y Kinzey, 1984)

que se hallan en este intervalo. El intervalo de los grupos familiares comprenden desde grupos incipientes con dos individuos hasta un máximo de diez individuos. De dicho intervalo, los grupos entre cinco y nueve ejemplares fueron los más frecuente, a diferencia, Buchanan-Smith (1991) sostiene que debido a la variabilidad de los métodos empleados en el conteo de grupos, el tamaño promedio de los grupos estaría comprendido en un intervalo de cuatro a siete individuos.

La composición social estuvo representada por una hembra reproductiva asociada hasta con cinco machos adultos, y su progeñe de una hasta la cuarta descendencia consecutiva. En algunos grupos además de la hembra reproductiva, también hubieron entre 1 y 3 hembras adultas inhibidas de reproducirse por la hembra dominante. Estos casos ocurrieron en grupos cuyo tamaño fue igual o superior a siete individuos.

Referente a la estructura poblacional, los progenitores superan porcentualmente a su progeñe en 69%, y representan gráficamente una pirámide invertida. En cambio, la proporción sexual en todas las categorías de edad fue de 1:1, excepto en la categoría de infantes 2 que fue 2.5:1 (Cuadro 3).

Densidad Poblacional

La densidad poblacional de *S. labiatus* fue estimada en 2.7 grupos/km² o 18.6 individuos/km². Únicamente fueron considerados nueve grupos familiares que realizaron más del 50% de sus actividades alimenticias y de locomoción en el área de 3.4 km². Los estimados de densidad poblacional (representados en individuos/km²) de *S. labiatus* obtenidos en este estudio difieren con lo reportado por Pook y Pook (1979) y Yoneda (1981, 1984)

Cuadro 1. Promedio de peso y longitud por edad y sexo en *Saguinus labiatus*.

Edad	Sexo	No.	Peso (g)	F (P)	No.	Longitud (mm)	F (P)
Adulto	Macho	136	490.1	5.254 **	47	602.2	0.26
Adulto	Hembra ¹	77	529.2	(0.05)	35	609.4	(n.s.)
Subadulto	Macho	18	414.7	0.042	5	576.0	0.0
Subadulto	Hembra	17	406.5	(n.s.)	5	576.0	(n.s.)
Juvenil	Macho	17	302.6	0.005	5	541.2	0.09
Juvenil	Hembra	24	305.4	(n.s.)	2	452.1	(n.s.)
Infante 2	Macho	6	203.3	0.62	5	489.9	0.42
Infante 2	Hembra	4	222.5	(n.s.)	2	455.0	(n.s.)
Infante 1	Macho	6	67.7	0.013	1	215.0	0.0
Infante 1	Hembra	5	70.0	(n.s.)	1	217.0	(n.s.)

¹ Las hembras preñadas fueron excluidas del pesaje.

** Diferencia significativa al 95%. (n.s.) = no significativo

para la Amazonia Boliviana, y con lo reportado por Aquino y Castro (1990) y Valverde *et al.* (1990) para la Amazonia Peruana. En cuanto a nuestro estimado de densidad poblacional representado en grupos/km² se encuentra en el intervalo de 1.7 a 2.9 reportados por Yoneda (1981, 1984) y Aquino y Castro (1989) para la Amazonia de Bolivia y Perú, respectivamente. El método de censo por transecto es el más comunmente utilizado por los autores antes citados. En contraste, durante este estudio utilizamos el método de localización en el mapa (mapeo) y únicamente fueron representados gráficamente aquellos grupos familiares que ocuparon más del 50% (mayor frecuencia) del total de avistamiento en el área de 3.4 km².

Agradecimientos: Hacemos extensivo nuestro especial reconocimiento por el apoyo logístico y financiero al Proyecto Peruano de Primatología "Manuel Moro Sommo". Asimismo a las autoridades locales de Puerto Maldonado, Iberia y San Lorenzo por brindarnos las facilidades del caso.

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Cuadro 2. Tamaño de grupo de *Saguinus labiatus* para el Perú y Bolivia.

Rango	No.de grupos	Tamaño promedio	Referencia	País
2-6	10	4.2	Yoneda (1981, 1982)	Bolivia
4-5	2	4.5	Pook y Pook (1982)	Bolivia
1-13	7	5.7	Freese <i>et al.</i> (1982)	Perú y Bolivia
3-8	27	6.6	Castro (en Sussman y Kinzey, 1984)	Perú
5-10	12	6.3	Buchanan-Smith (1990,1991)	Bolivia
1-8	19	6.0	Castro <i>et al.</i> (1990)	Perú
3-6	5	6.0	Encarnación y Castro (1990)	Perú
2-8	14	6.0	Valverde <i>et al.</i> (1990)	Perú
2-10	65 y 9	6.1 ¹ y 6.9 ²	Este estudio	Perú

¹Tamaño de grupo estimado en base a 65 grupos familiares.

²Tamaño de grupo estimado en base a 9 grupos familiares en el área de 3.4 km².

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Cuadro 3. Estructura poblacional de *Saguinus labiatus* en base a 38 grupos completos atrapados en su medio natural.

Edad	Macho	Hembra	Total	%	Proporción de sexo
Adulto	91	65	156	69	1.4:1
Subadulto	15	11	26	11	1.4:1
Juvenil	13	12	25	11	1.1:1
Infante 2	5	2	7	3	2.5:1
Infante 1	6	7	13	6	1:1.2
Totales	130	97	227	100	1.3:1

Infante 2, ejemplares con parcial dependencia parental.

Infante 1, ejemplares con completa dependencia parental.

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the functions of demographic groups. Cohen (1971) has studied the statistical properties of frequency distributions of primate subgroups of variable size and found that, in general, a zero-truncated binomial distribution provides a good fit where the rate of replacement is >0 . Thus, by definition, a subgroup must have the potential to increase in size, and subgroup size may be inherently unstable where solitary individuals or individuals from other groups join subgroups (Rannala and Brown, 1994; Pulliam and Caraco, 1984). Expansion is expected to cease where subgroup size approximates some equilibrium value (Rannala and Brown, 1994).

Subgroup sizes of one demographic group of mantled howler monkeys (*Alouatta palliata* Gray) in tropical dry forests were sampled using *ad libitum* methods over an 18-month period in 1976 and 1977 at Hacienda La Pacifica, Cañas, Guanacaste, Costa Rica. The resulting distribution was analyzed. Only adults were counted (N=18). Figure 1 shows the subgroup sizes and their frequency (mean = 4.46 ± 1.99 , N = 120). The coefficient of dispersion is 0.89, representing a repulsed (or overdispersed) distribution with more observations at the center of the distribution than at the extremes and with variance smaller than one would expect by chance alone, suggesting an optimal subgroup size.

Table 1 gives the frequency of subgroups with and without male membership. Males are identified by dominance rank (1, 2, 3, highest rank to lowest; Jones, 1980). Also shown are the mean, standard deviation, and coefficients of dispersion for each category. Female subgroups exhibit the lowest mean group size. Single males subgroup with about equal frequency, and, likewise, mean group size of single male subgroups is approximately equivalent. Two-male subgroups reflect the dominance hierarchy, whereby subgroups including the second and third-ranked males are more frequent than subgroups including the first and third-ranked males. Following this, subgroups including the first

Table 1. Identity (I), frequency (f), mean \pm standard deviation ($\bar{M} \pm SD$), and coefficients of dispersion (CD) of subgroups of one demographic group of mantled howler monkeys in tropical dry forest.

I	f	$\bar{M} \pm SD$	CD
Females	33	3.03 ± 1.24	.51
2	28	4.71 ± 1.72	.63
1	26	4.85 ± 1.43	.42
3	24	5.17 ± 2.08	.84
2, 3	5	7.60 ± 2.50	.82
1, 3	4	2.75 ± 1.50	.82

HOWLER SUBGROUPS AS HOMEOSTATIC MECHANISMS IN DISTURBED HABITATS

The size and composition of groups may have important consequences for the survival and fecundity of organisms (Terborgh and Janson, 1986; Pulliam and Caraco, 1984). A subgroup may be defined as a unit (>1) of a demographic group whose functions may be similar to or different from

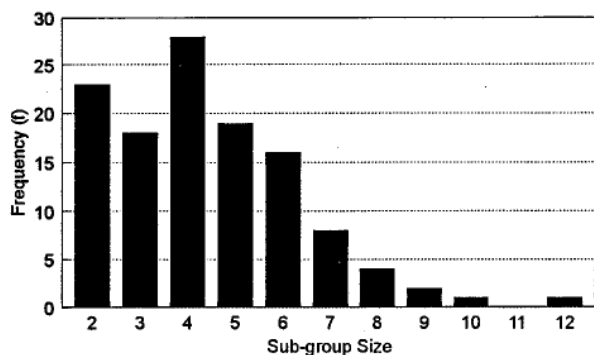


Figure 1. Frequency and size of subgroups for one demographic group of mantled howler monkeys at Hacienda La Pacifica, Costa Rica.

and second-ranked males appear to be rare (see Noë, 1994), although these males were observed to subgroup seven times on occasions when counts were not made. All coefficients of dispersion are repulsed. A "t-test" (one-tailed) of mean subgroup size for subgroups with and without males showed male subgroup size to be larger ($\leq .001$, $t = 7.88$, $df = 118$), suggesting that those with males are more "attractive" than those without, possibly because males subgrouped primarily in association with "preferred" and ephemeral food (flowers 35%; fruit 39%; and new leaves 26%; $N = 108$) or because there is less conflict in subgroups with males (see Rannala and Brown, 1994).

Howlers occupy a broad range of habitats (Wolfheim, 1983; pers. obs.), and consequently encounter significant environmental heterogeneity. Changing costs and benefits to individual subgroup members may yield differential gains for varying subgroup sizes, presumably in response to variations in environmental conditions. Howler environments may be heterogeneous with respect to macro- and microclimates; the structure of the forest, including tree architecture, patch size, resting sites, treefall gaps, and habitat fragmentation; predation pressure; disease, reproductive opportunities; food availability and quality; "information centers"; and population density. These and other factors, as well as the individual composition of subgroups vary over time and space, conditions which would continuously modify the costs and benefits of subgrouping. Habitat disturbance is expected to increase the rate at which costs and benefits change.

Lewontin (1957) discussed the adaptations of populations to environmental heterogeneity and posited that such regimes may select for homeostatic responses. Subgrouping may represent

such a homeostatic response where the benefits of remaining with the demographic group decrease to a point favoring "temporary" or "semi-permanent" subgrouping. Such processes may lead to permanent subdivision, including the establishment of new groups and the colonization of marginal habitats (see Malmgren, 1979; Jones, 1980, p. 396). Subgrouping in mantled howlers may contribute to their survival capacities in disturbed regimes.

La Pacifica is a disturbed area, including significant deforestation, habitat fragmentation, and selective cutting (Clarke and Zucker, 1994; Malmgren, 1979; pers. obs.) where the howler population may be maintained by immigration (i.e., metapopulation effects). Howlers have thrived at this site where no other monkey species reside. Mantled howlers are listed as "endangered" in the United States Endangered Species Act (Groves, 1993), primarily due to habitat destruction in areas outside of Costa Rica (Wolfheim, 1983). La Pacifica may be viewed as a conservation experiment where mantled howlers show no apparent signs of local extinction (Clarke and Zucker, 1994). Local extinctions of fragmented populations are common (Fahrig and Merriam, 1994), and it will be important to conduct continuing studies of the La Pacifica metapopulation to document changes as disturbance continues, especially the flexibility of howler behavior, social organization, and population dynamics. This note proposes that patterns of subgrouping in mantled howlers indicate homeostasis in response to environmental heterogeneity which may maximize the opportunities for success of these monkeys in disturbed and managed areas. Animals with similar characteristics (e.g., *Ateles* and *Cebus*) may also employ subgrouping as a flexible homeostatic response.

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paper, I will describe the reintroduction of a pet female red howler into the wild in a gallery forest on a ranch in Venezuela.

History of the pet red howler: A wild-born, juvenile, female red howler had been kept as a pet for about 15 months. During that time, she was tied with a leash and chain, and kept outdoors. She was able to eat leaves, flowers, and fruits from the garden. She was fed with such as vegetables, fruits, rice, and crackers. The owner was interested in releasing her back into the wild, and she was, as a result, brought to me in February 1988, while I was conducting a field study on the howling monkey population at Hato Masaguaral, Venezuela (Agoramoorthy and Rudran, 1992, 1993, 1994).

The pet howler was kept in a cage of 2.5 m x 2.5 m x 3.5 m at the study site, adjacent to a social group of captive red howlers, during approximately 12 months. The captive group were wild-caught, and were being kept to conduct nutritional studies on fiber digestibility and digesta passage (Crissey *et al.*, 1989). Both the captive group and the pet female were fed mainly on natural vegetation. They also received monkey chow as a supplement on a regular basis. In captivity, the pet howler had visual contact with the captive group as well as a neighboring wild group. She learned to feed on local, naturally-occurring food items offered to her. Whenever the wild group approached the cage, the captive social group would howl vigorously, occasionally being accompanied by the pet female.

Reintroduction Process: During the first week of August 1989, an association of five individuals (two adult males, two adult females, and one juvenile female) was located in a neighboring forest called Hato Flores Moradas. The habitat was classified as gallery forest (Troth, 1989). A red howler association is a loose gathering of four or five individuals from different social groups, often having one or two adult males and females plus immatures. Associations usually roam around the territories of several social groups. Once an association establishes a definite home range and starts to breed, it becomes a group. The established social groups are territorial, and often show aggressive behavior towards intruding solitary animals as well as neighboring rival groups. Males and females usually disperse from their natal groups to immigrate into neighboring social groups or join a nearby association (Rudran, 1979; Crockett, 1984; Agoramoorthy and Rudran, 1993).

The Flores Moradas association was followed between 12 August and 27 September to determine

RED HOWLING MONKEY (*ALOUATTA SENICULUS*) REINTRODUCTION IN A GALLERY FOREST OF HATO FLORES MORADAS, VENEZUELA

Introduction: Red howling monkeys, *Alouatta seniculus*, are one the largest cebids, and are widely distributed in the neotropics (Wolfheim, 1983). A large number of field studies have focussed on the population and behavioral ecology of free-living red howlers (Izawa, 1988; Drubbel and Gautier, 1993; Agoramoorthy, 1994). However, little is known about the reintroduction of these animals into their original habitat. In this

their ranging pattern and to record the social behavior of the individuals in the association (*ad libitum* sampling; Altmann, 1974). The pet howler was taken to the gallery forest in a cage of 1.5 m x 0.5 m x 0.5 m four times a week, and was kept close to the association in order to maintain visual contact. The total time of visual contact between the pet and the association was approximately 11 hours. Initially the association members showed aggressive behavior by howling, branch-shaking, and rubbing their chins (scent-marking) on branches. After a few days, the aggression was gradually reduced, and the association began to pay little attention to the caged pet on the ground.

Two weeks before the release, the pet howler was examined by a local veterinarian and found to be free of infectious disease. The three-year old female was also ear-marked for identification. On 28 September 1989, she was taken to the forest for her final release (1530 hours). She was let out of the cage 25 m from the association, under a tree. She immediately climbed the tree to about 10 m above the ground. Immediately the association members started vocalizing, approached the female, and chased her away. She showed aggressive behaviors such as arch-walking, pilo-erection, and chin-rubbing towards the association members. Howling stopped after about 20 minutes, and the association moved off. The released female was followed for three weeks. She was seen near to and following the association closely, about 50 m from where she was released. No physical fights were seen. Two months later, she was found with the association, and apparently well accustomed to her new wild habitat as well as wild howlers.

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ESPÉCIES OU SUBESPÉCIES EM *CALLITHRIX*?

A alocação dos taxa de *Callithrix* (Callitrichidae) à categoria de espécies ou subespécies tem sido objeto de controvérsia nos últimos vinte anos (Hershkovitz, 1977; Coimbra-Filho & Mittermeier, 1981; Mittermeier *et al.*, 1988, 1992; Vivo, 1991; Rylands *et al.*, 1993). Acredito que boa parte desta controvérsia tem sido gerada por uma má compreensão dos princípios taxonômicos evolutivos relacionados à esta questão. Nesta nota esboço a visão corrente, adotada por boa parte dos sistematistas, para o reconhecimento dos taxa ao nível específico e subespecífico. Ao mesmo tempo, procuro mostrar que a polêmica sobre os taxa de *Callithrix* já esta resolvida, pelo menos até que

novos fatos sobre a existência e dinâmica de possíveis zonas de hibridação entre as linhagens destes sagüis se tornem conhecidas.

Não é objetivo desta nota rever a extensa bibliografia sobre conceitos de espécies, o que são subespécies e muito menos a teoria e prática taxonômica relacionadas ao seu reconhecimento. No entanto, apresento de maneira resumida, o estado da arte em relação a estes conceitos e o que parece ser consenso entre a maioria dos sistematas. Antes da revolução Darwiniana, a categoria específica, assim como todas as outras categorias taxonômicas, era apenas um artefato de classificação em um mundo de entidades não transmutáveis. Com o estabelecimento do fato da evolução a partir de Darwin (1859), a categoria "espécie" continuou a refletir a necessidade prática de classificar organismos, mas também assumiu o significado de representação das unidades evolutivas, sendo considerada uma entidade real da natureza, com todas as outras categorias taxonômicas sendo, até certo ponto, arbitrárias. O conceito de espécie mais amplamente utilizado é o de Buffon, popularizado em uma versão moderna por Mayr (1963), que diz que uma espécie é um agrupamento de populações naturais intercruzantes, reprodutivamente isolados de outros grupos com as mesmas características. Embora existam várias críticas em relação a este conceito (ver Templeton, 1989), este será aqui utilizado como uma representação da ortodoxia vigente.

Por outro lado, o conceito de raça geográfica ou subespécie tem sido utilizado com duas finalidades distintas e freqüentemente contraditórias. 1) O trinômio tem sido usado como artefato de classificação para distinguir subgrupos ou populações diferenciadas de uma dada espécie. Neste sentido, a categoria infraespecífica é uma maneira de reconhecer e separar formalmente a variação geográfica de uma espécie. Dentro deste contexto, a subespécie é uma divisão arbitrária e subjetiva, sendo que seu reconhecimento irá variar de um autor para outro. 2) Subespécies tem sido empregadas como entidades taxonômicas representando subunidades evolutivas com características próprias dentro de uma espécie. Neste sentido, tal categoria é empregada com o intuito de representar acuradamente populações que por razões históricas ou ecológicas tornaram-se diferenciadas, mas que no momento presente da sua história filogenética se cruzam livremente. Neste ponto, vale a pena lembrar que a simples existência, real ou potencial, de fluxo gênico entre populações diferenciadas, não significa

automaticamente que estas devam ser consideradas subespécies. Tentarei explicar melhor este ponto.

Duas situações ocorrem freqüentemente ao se utilizar a categoria subespecífica na taxonomia. Na primeira (Fig. 1a) utiliza-se o trinômio para designar as pontas de uma variação geográfica contínua em um dado caráter, ignorando que estas populações situadas nos extremos da variação estão ligadas por uma série de populações intermediárias. Com esta prática, ao invés de descrever com maior precisão as sutis variações entre as populações de uma dada espécie, ocorre justamente o inverso, mascarando o padrão de variação e dando uma idéia errada do mesmo. Um corolário desta divisão de um espectro de variação em parcelas discretas, ditas subespécies, com fronteiras geográficas nítidas e traços reconhecíveis, é a incongruência que aparece quando comparamos um caráter com outro. Em outras palavras, a divisão intraespecífica feita com base em um determinado caráter não será a mesma com base em outros caracteres. Sendo assim, uma subespécie não é uma espécie incipiente e nem uma descrição acurada do fenômeno evolutivo subjacente à diferenciação entre populações de uma espécie. Isto decorre, em grande parte, da natureza dinâmica dos fenômenos ecológicos/genéticos dentro e entre populações de uma espécie, resultando em alterações, no tempo e espaço, dos limites impostos ao se nomear subespécies.

Outra situação freqüente na utilização do trinômio (Fig. 1b), ocorre quando duas espécies distintas apresentam sobreposição parcial na distribuição dos caracteres e são denominadas subespécies, quando na verdade são linhagens evolutivas distintas. Nestas situações, vale lembrar que a ausência de fluxo gênico entre populações simpátricas ou parapatricas diferenciadas é evidência de que o processo de especiação está completo. No entanto, a existência de fluxo gênico entre estas linhagens não significa necessariamente que estas sejam automaticamente consideradas subespécies. Para que esta categoria seja utilizada como uma representação do processo evolutivo é necessária a demonstração de uma zona de hibridação em expansão entre as linhagens. Um exemplo bem conhecido em mamíferos é o caso dos lobos e coiotes que formam uma zona de hibridação estreita. No entanto, ninguém duvida que estes grandes carnívoros são unidades biológicas reais e distintas em termos genéticos, evolutivos, na morfologia, ecologia, estrutura social e comportamento de caça, e que portanto devam ser consideradas como espécies distintas (Templeton, 1989).

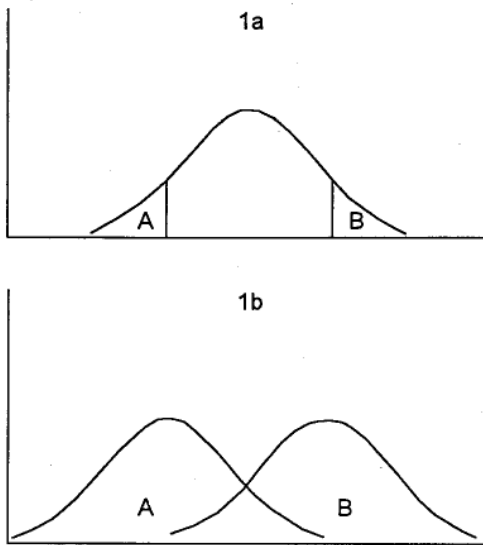


Figura 1. Duas situações frequentes no emprego da categoria subespecífica: 1a) Em um caráter qualquer apresentando variação geográfica, os extremos da distribuição são nomeados arbitrariamente como subespécies (A e B). 1b) Duas linhagens evolutivas independentes apresentam sobreposição parcial em um determinado caráter, sendo nomeadas como subespécies (A e B).

Tendo esboçado acima o que acredito ser consenso entre grande parte dos sistematas evolutivos atuais, voltemos ao caso do gênero *Callithrix*. Todos os taxa deste gênero podem ser distinguidos por caracteres de pelagem e coloração, o que parece ser um padrão geral para toda família Callitrichidae. Além disso, embora exista variação geográfica nestes caracteres em algumas espécies, a variação entre os taxa é sempre de natureza descontínua (Vivo, 1991). Boa parte das espécies são largamente alopátricas, com zonas de contato de distribuição entre os pares de espécies. Existem registros de algumas localidades onde ocorrem híbridos entre as espécies do leste brasileiro (grupo *jacchus*) (Coimbra-Filho *et al.*, 1993). Estas, no entanto, são em número reduzido e restritas as bordas da distribuição dos pares de espécies, não sendo suficientes na maioria dos casos para definir zonas de hibridação, com exceção de *C.jacchus* e *C.penicillata* (v. Alonso *et al.*, 1987). Mesmo no caso destas duas espécies, o cinturão de hibridação parece ser estreito e restrito a uma única área, o Recôncavo Baiano, onde a modificação antrópica é evidente (Alonso *et al.*, 1987). Estudos sobre a ecologia e bionomia das várias espécies de sagüis são escassos, com algumas delas ainda praticamente sem informações. No entanto, as informações disponíveis, particularmente para as

formas do leste brasileiro, sugerem diferenças na ecologia, e bionomia destas linhagens. Além disso, existem diferenças significativas na dentição entre as formas do grupo *jacchus* (Natori e Shigehara, 1992) e estudos que venho conduzindo sobre a diferenciação craniana destes sagüis indicam uma heterogeneidade na morfologia do crânio. Isto sugere a ocupação de zonas adaptativas próximas, mas distintas, por cada linhagem de sagüis.

Dada a breve discussão acima e tudo que se conhece sobre a biologia destes sagüis, não vejo como, nem porque, qualquer das formas nominais de *Callithrix* devam ser consideradas como subespécies (v. Ávila Pires, 1969; Coimbra-Filho e Mittermeier, 1973; Hershkovitz, 1977; Mittermeier e Coimbra-Filho, 1981; Mittermeier *et al.*, 1988; Rylands *et al.*, 1993). Embora tenha utilizado aqui o conceito de Mayr (1963), vale ressaltar que o emprego de outros conceitos de espécie (Simpson, 1962; Van Valen, 1976; Templeton, 1989) resultaria nas mesmas conclusões. Até que informações precisas sobre a existência e dinâmica de possíveis zonas de hibridação entre as formas de *Callithrix* estejam disponíveis, a revisão detalhada de Vivo (1991) com o arranjo taxonômico ali proposto, continua sendo a melhor aproximação às entidades biológicas reais na natureza. Desde que este arranjo taxonômico reflete tanto as unidades evolutivas de *Callithrix* como também a finalidade prática de se classificar os organismos, sugiro que se ponha uma pedra sobre esta polêmica. Esta me parece mais uma falsa questão a atravancar o avanço do nosso conhecimento científico sobre os sagüis do que propriamente o resultado de novos fatos que levassem a reconsiderar o status específico destas linhagens.

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A POLE BRIDGE TO AVOID PRIMATE ROAD KILLS

Introduction

Habitat fragmentation has become one of the most serious problems for wildlife conservation. In many parts of the world where human activities have been intense, a good example being the state of São Paulo, Brazil, natural habitats such as forests have become scarce and are mainly comprised of small, isolated patches, with animals lacking the possibility of migrating from one fragment to another. The population viability of a species is not solely dependent on its size, but also on the patchiness of the existing habitats where it occurs and on the movement of individuals between habitable patches. In the extreme case, discontinuous habitats may result in the total impossibility of natural migration among local populations (Valladares-Padua, 1993). Habitat or population fragmentation creates small, isolated sub-populations, which enhances the probability of their extinction due to genetic, demographic and environmental forces acting within patches (Soulé, 1980; Ralls and Ballou, 1983). Even if the sub-populations survive, isolation itself can cause genetic drift, leading to genetic divergence and consequent speciation (Franklin, 1980; Otte and Endler, 1989).

Among many proposed solutions to fragmentation, the most widely discussed has been the creation of forest corridors (Harris, 1984). Although very appealing, there are situations where corridors are no longer entirely feasible due to the distance between the fragments. In many cases, they would need to cross properties belonging to several owners, who may not always be willing to collaborate. They would also fail to solve the problems of roads, nowadays a huge threat to wildlife.

Threats of Roads to Wildlife

The negative effect of roads on wildlife has been widely discussed in the literature (Adams and Geis, 1983; Day, 1990). A road is not simply an obstacle which animals have to cross every so often, it is part of their habitat, to be used whenever necessary. The consequence is a massive quantity of traffic road kills. To illustrate the size of the problem, the estimated number of vertebrates run over by vehicles in the United States is one million each day (Lalo, 1987). In the Netherlands alone, 800,000 birds and mammals are killed per year on highways (Van der Zande *et al.*, 1980).

Although there are no statistics for this important wildlife threat in Brazil, it is evident that roads have a considerable negative impact on local faunas. During 89 days of field work at the Morro do Diabo State Park in the west of the state of São Paulo, we collected 24 vertebrates killed on the highway that crosses this Park from east to west. The average is thus of approximately one road death every four days. Among the victims, we observed marsupials, ungulates, rodents, felids, and primates such as capuchins and howler monkeys, and, in September 1994, a black lion tamarin.

Primates, being territorial and canopy forest dwellers, are significantly affected by roads. Evidently, the problem becomes even more serious when it affects endangered species. We observed black lion tamarins (*Leontopithecus chrysopygus*), one of the world's most endangered species of primates, crossing roads both at the Morro do Diabo State Park and at the Fazenda Rio Claro (Duratex S.A.), Lençóis Paulista, also in the state of São Paulo. J.Dietz has observed golden lion tamarins (*Leontopithecus rosalia*) crossing a dirt road at the Poço das Antas Biological Reserve, Rio de Janeiro (J.Dietz, pers. comm.). Likewise, Brazilian bare-faced tamarins (*Saguinus bicolor bicolor*) have been seen crossing a road on numerous occasions in the university campus in Manaus, Amazonas (J.S.Rêgo, pers. comm.).

A Simple and Effective Solution

We have been conducting a long term study of the primate community of the Fazenda Rio Claro. During the first seven days of field research at this site, we observed one of our *L.chrysopygus* study groups crossing a service road three times. Because this was a road used mainly by the company's vehicles, we were able to discuss the matter with the farm's administrators and explain our concerns of possible road kills and what this would represent

to such a critically endangered species. We proposed the construction of a pole bridge placed exactly over the locale the animals were crossing. The bridge was immediately built using round wooden poles, stretched above the road at a height of 6 m (Fig. 1). As soon as it was assembled, black lion tamarins and capuchins (*Cebus apella*) began crossing the bridge, travelling back and forth, reintegrating their home range once again. This simple alternative has undoubtedly reduced quite considerably the possibilities of these animals being run over, and in the case of the lion tamarins, contributing to the protection of one of the most endangered species in the world. From its installation, in the middle of August 1991, to the end of 1994, two groups of black lion tamarins and a large group of capuchins have been recorded (incidentally) using the bridge on at least 40 occasions. We believe that these primate groups use the bridge constantly, probably daily.

Our conclusion is that if other options are available, primates will avoid using the ground as a way to pass from one area to another within their fragmented range. Simple and creative solutions such as the construction of pole bridges or even rope bridges (which still need to be tested on a long term basis) should be sought whenever a situation of threat is found in the field.

Acknowledgements

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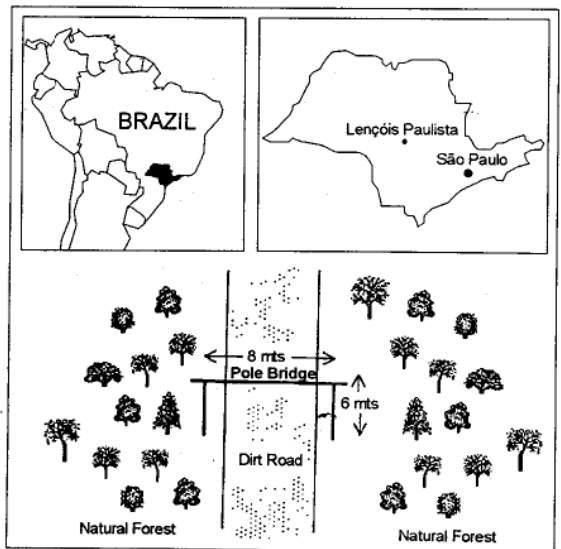


Figure 1. A simplified illustration of the pole bridge at the Rio Claro farm of Duratex S.A., Lençóis Paulista, São Paulo.

who have shown great enthusiasm to new conservation ideas. We also thank IPÊs staff for helping with data collection and technical assistance. We are grateful to many organizations for their support of the Black Lion Tamarin Project through the years: the Forestry Institute of São Paulo (IF), the Secretaria do Meio Ambiente (SMA), São Paulo, The Brazilian Institute for the Environment (Ibama), the International Committee for the Conservation and Management of the Black Lion Tamarin, The Lion Tamarins of Brazil Fund, Apenheul Zoo, Holland, the Canadian Embassy in Brazil, Conservation International (CI), the Fanwood Foundation, Fundação O Boticário de Proteção à Natureza, the Jersey Wildlife Preservation Trust (JWPT), U.S. Fish and Wildlife Service, the Whitley Animal Preservation Trust, the Wildlife Conservation Society (WCS), Wildlife Preservation Trust International (WPTI), and the World Wildlife Fund (WWF).

Claudio Valladares-Padua, Laury Cullen Jr. and Suzana Padua, IPÊ - Instituto de Projetos e Pesquisas Ecológicas, Av. dos Operários, 587, 13416-460 Piracicaba, São Paulo, Brazil

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News

CAPTIVE MANAGEMENT PROGRAMS FOR NEW WORLD PRIMATES

Primates are among the most popular species exhibited in zoological parks worldwide. Some species are hardy and have long histories in captivity. Others are more difficult to obtain or maintain, and, as a result, rarely seen in zoos. Properly exhibited, the educational value of many species is very significant and is often the sole opportunity for people living in North America, Europe, and elsewhere to observe these animals in naturalistic settings.

Regardless of their abundance in nature or the species' ease of husbandry, many species are declining in numbers within their natural range while simultaneously becoming more difficult to export from the wild. Given this growing situation, zoos and zoo associations in many regions outside Central and South America are developing programs to manage better those species already present in their collections. These programs frequently have several levels of management, depending on the conservation needs of the species, number of original wild born ancestors (founders) present in the current population, the number and size of captive populations, and the amount of cage "space" available to maintain the species. In order to minimize competition for space with less needy species, several zoo organizations have developed Taxon Advisory Groups or TAGs to evaluate better which species of New World primates should be maintained within their region. Other species with lesser conservation needs and extant captive populations are reduced or eliminated following the decision that captive breeding programs are less urgent.

The following itemization lists which taxa are being managed by zoos in North America, Europe, and Australasia, and the location of the respective programs.

New World Primate TAG of the American Zoo and Aquarium Association (AZA). Co-Chairs, Anne Baker, Burnet Park Zoo, 500 Burnet Park Drive, Syracuse, NY 13204, USA, and Andrew Baker, Curator of Primates, Philadelphia Zoological Gardens, 3400 West Girard Avenue, Philadelphia, PA 19104-1196, USA.

Species Survival Plan (SSP) - Coordinators

<i>Saguinus oedipus</i>	Anne Savage, Roger Williams Park Zoo
<i>Leontopithecus rosalia</i>	Devra Kleiman, National Zoo
<i>Callimico goeldii</i>	Anne Baker, Burnet Park Zoo
<i>Saguinus leucopus</i>	SSP recommended, September 1994

Regional Studbooks

<i>Cebuella pygmaea</i>	Deborah Baker, Folson Children's Zoo
<i>Callithrix geoffroyi</i>	Beth Bahner, Philadelphia Zoo
<i>Saguinus oedipus</i>	Gerald Aquilina, Buffalo Zoological Gardens
<i>Saguinus geoffroyi</i>	Alan Sironen, Cleveland Metroparks Zoo
<i>Saguinus imperator</i>	Lee Nesler, Pittsburgh Zoo
<i>Saguinus bicolor</i>	Andrew Baker, Philadelphia Zoo
<i>Leontopithecus rosalia</i>	Jonathan Ballou, National Zoological Park
<i>Leontopithecus chrysomelas</i>	Jonathan Ballou, National Zoological Park
<i>Callimico goeldii</i>	Mark Warneke, Chicago Zoological Park
<i>Callicebus spp.</i>	Ken Kaemmerer, Dallas Zoo
<i>Aotus spp.</i>	Robin Brockett, Zoo Atlanta
<i>Pithecia pithecia</i>	Anthony Vecchio, Roger Williams Zoo
<i>Alouatta caraya</i>	Barbara Baker, Pittsburgh Zoo
<i>Lagothrix lagotricha</i>	Vacant
<i>Ateles geoffroyi</i>	Kathryn Pingry, Brookfield Zoo

<i>Ateles fusciceps</i>	Kristi Flanders, Sedgewick County Zoo
<i>Ateles belzebuth</i>	Kristi Flanders, Sedgewick County Zoo
<i>Ateles paniscus</i>	Kristi Flanders, Sedgewick County Zoo
<i>Callithrix kuhli</i>	Petition pending, Jeffrey French, University of Nebraska at Omaha

International Studbooks

<i>Saguinus oedipus</i>	William Langbauer, Pittsburgh Zoo
<i>Saguinus imperator</i>	Lee Nesler, Pittsburgh Zoo
<i>Leontopithecus rosalia</i>	Jonathan Ballou, National Zoo
<i>Callimico goeldii</i>	Mark Warneke, Chicago Zoological Park
<i>Alouatta caraya</i>	Barbara Baker, Pittsburgh Zoo

European Endangered Species Programme (EEP) Co-chairs Miranda Stevenson, Royal Zoological Society of Scotland, Edinburgh Zoo, Murrayfield, Edinburgh EH12 6TS, Scotland, UK, and Christian Schmidt, Zoologischer Garten der Stadt Frankfurt am Main, Alfred-Blehm-Platz 16, D6000 Frankfurt am Main 1, Germany. This listing was drawn up with the help of J. Bryan Carroll, Jersey Wildlife Preservation Trust.

EEP Coordinators

<i>Saguinus oedipus</i>	Michael Schropel, Magdeburg Zoo
<i>Saguinus imperator</i>	Eric Bairrão Ruivo, Lisbon Zoo
<i>Leontopithecus rosalia</i>	Ron Willis, Dublin Zoo
<i>Callimico goeldii</i>	Gustl Anzenberger, University of Zürich
<i>Pithecia pithecia</i>	Sian Waters, Bristol Zoo
<i>Lagothrix lagotricha</i>	Wim Mager, Apenheul Zoo

Regional Studbooks

<i>Cebuella pygmaea</i>	Wim Mager, Apenheul Zoo
<i>Leontopithecus chrysomelas</i>	Helga de Bois, Antwerp Zoo
<i>Callimico goeldii</i>	Gustl Anzenberger, University of Zürich

International Studbooks

<i>Cebuella pygmaea</i>	Wim Mager, Apenheul Zoo
<i>Leontopithecus chrysomelas</i>	Helga de Bois, Antwerp Zoo

Primate TAG of the Federation of Zoological Gardens of Great Britain and Ireland, Chairman Neil Bemment, Paignton Zoological and Botanical Gardens, Totnes Road, Paignton TQ4 7EU, Devon, England. Chairperson for Cebidae, Siân Waters, Clifton and West of England Zoological Society, Clifton, Bristol BS8 3HA, UK. Chairperson for Callitrichidae, J. Bryan Carroll, Jersey Wildlife Preservation Trust, Les Augrès Manor, Trinity, Jersey JE3 5BF, Channel Islands, GB. Note: Any British Isles management program is automatically integrated with that of the EEP whenever it exists. This listing was drawn up with the help of J. Bryan Carroll, Jersey Wildlife Preservation Trust.

Management Programs

<i>Callithrix argentata</i>	Stewart Muir, Shaldon Zoo
<i>Callithrix geoffroyi</i>	Jersey Wildlife Preservation Trust
<i>Saguinus labiatus</i>	Miranda Stevenson, Edinburgh Zoo
<i>Saguinus oedipus</i>	Robert Colley, Pencynor Wildlife Park
<i>Saguinus imperator</i>	Robert Colley, Pencynor Wildlife Park
<i>Leontopithecus rosalia</i>	Ron Willis, Dublin Zoo
<i>Aotus</i> spp.	John Pullen, Zoological Society of London
<i>Cebus capucinus</i>	David Hughes, Glasgow Zoo
<i>Pithecia pithecia</i>	Paddy Vaughan, Fota Wildlife Park
<i>Ateles</i> spp.	Neil Bemment, Paignton Zoo

Regional Studbooks

<i>Cebuella pygmaea</i>	John Stronge, Belfast Zoo
<i>Pithecia pithecia</i>	Paddy Vaughan, Fota Wildlife Park
<i>Ateles</i> spp.	Neil Bemment, Paignton Zoo

Primate TAG of the Australasian Species Management Program (ASMP). Convener Amanda S. Embury, Royal Melbourne Zoological Gardens, P.O. Box 74, Parkville, Victoria 3052, Australia.

Management Programs and Regional Studbooks

<i>Saguinus oedipus</i>	Amanda Embury, Melbourne Zoo
<i>Leontopithecus rosalia</i>	Amanda Embury, Melbourne Zoo
<i>Saimiri</i> spp.	Vacant
<i>Ateles</i> spp.	Vacant

Other International Programs

International Studbooks

<i>Leontopithecus chrysopygus</i>	Claudio Valladares-Padua, University of Brasília, Brasília
<i>Cebus apella xanthosternos</i>	Alcides Pissinatti, Centro de Primatologia do Rio de Janeiro, Rio de Janeiro.

Alan Shoemaker, Riverbanks Zoological Park, P.O.Box 1060, Columbia, SC 29202, USA.

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STATUS, DISTRIBUTION AND VIABILITY OF WILD POPULATIONS OF *ATELES BELZEBUTH MARGINATUS*

The white-whiskered spider monkey, *Ateles belzebuth marginatus*, the subspecies endemic to Brazilian Amazon, occurs in the state of Pará, between the Rios Tapajós and possibly Tocantins: an area of numerous cattle-ranches, proposals for the construction of hydroelectric dams, and intense mining activities.

A.b.marginatus is the most endangered and least known subspecies of Brazilian spider monkeys.

Even its geographic distribution is controversial and requires investigation, most especially since the results of a short investigation which indicated the possibility of a misunderstanding regarding the origin of the holotype which extends its range to the east of the Rio Xingú, doubling what might be its real distribution (Martins *et al.*, 1988).

At the end of 1994 a project was set up, funded by the *Fundo Nacional do Meio Ambiente*, to assess the status and viability of the wild populations. Field surveys will be carried out in 1995, in several localities along the Rios Tapajós and Tocantins, investigating in particular the southern limits of its distribution, and examining genetic viability, and such population parameters as density, group size, composition, and primary sex ratio. Special attention will be given to the populations inhabiting the Tapajós National Forest, the only protected area for the subspecies.

The project will be supervised by Andrea Nunes (Departamento de Zoologia, Museu Paraense Emílio Goeldi, Belém), and carried out with the help of a team of master's students of the Universidade Federal do Pará. It is part of a cooperation agreement between scientists of the Zoology Department of the Goeldi Museum and the Genetics Department of the Federal University of Pará.

Andrea Nunes, Departamento de Zoologia, Museu Paraense Emílio Goeldi, Caixa Postal 399, 66040-170 Belém, Pará, Brazil.

Reference

Martins, E.S., Ayres, J.M. and do Valle, M.B.R. 1988. On the status of *Ateles belzebuth marginatus* with notes on other primates of the Iriú river basin. *Primate Conservation*, (9): 87-91.

DUETTING IN THE TITI MONKEY *CALLICEBUS CUPREUS*

A detailed study of duetting in wild titi monkeys was carried out by Robinson (1977, 1979a, 1979b, 1981). However, recordings of captive animals permit a more detailed analysis, and in the case of newly-formed pairs, to follow the development of the duet. In this study duets were recorded and analysed from 13 animals (seven females and six males) held at the California Regional Primate Research Center, Davis. Five of these animals had been paired with two different mates, yielding a

total of nine different pair combinations. Two pair combinations involved close relatives, one father-daughter pair and one mother-son. One of the pairs studied was together for only one day, while for another duets were available from three different time periods. The study addressed three main topics: 1) In-depth analysis of the duet structure; 2) Comparison of intra- versus inter-pair variability (i.e., are duets pair-specific?); and 3) If duets are pair-specific, how do they develop over time?

A *Callicebus cupreus* duet¹ is composed of successive sequences sung by both mates. Both female and male sequences are composed of two consecutive and comparably structured parts: bellow-and-pumping and pant-and-pumping, respectively. A duet is composed of alternately uttered male and female sequences, that is while the male is singing bellow-and-pumping, the female is singing pant-and-pumping and vice-versa.

Bellows, the loudest calls in a duet, are individual-specific. Individuals of the same sex housed in the same or adjacent cages always differ regarding their bellow frequencies. Statistical comparison of sequence lengths (the longest repeated units within a duet) across individuals yielded no significant differences, i.e., sequence lengths seem to be species-specific. However, when comparing two pair combinations in which one mate remained constant, differences were found only if the male was changed. If the male changed, the length of male and female sequences altered, whereas this was not the case if the female changed. The difference resulted from new individual part lengths.

Callicebus duets are pair-specific in so far as individuals contribute specific part lengths and bellow frequencies. As a corollary, the pair-specificity of duets results from a summing of individual attributes of the two mates rather than from an adaptation of one mate to the other or from mutual adaptation. The length of the duet parts seem to be determined by the female rather than the male, and the transition between the two parts is most probably induced by the females.

To investigate the development of duets, first those of two newly-formed pairs were compared with duets of established pairs. These first duets showed

¹ Systematics according to P. Hershkovitz (Titís, New World monkeys of the genus *Callicebus* (Cebidae, Platyrrhini): a preliminary taxonomic review, *Fieldiana, Zoologia (new series)*, 55: 1-109, 1990). It follows from this that the animals investigated by Robinson (1979a, 1979b, 1981) and in the present study belong to the same species.

a greater variability in sequence and part lengths than those of established pairs. At the beginning of a new partnership, duets do not follow a very regular pattern. Contrary to some earlier reports, however, in captivity new pairs do perform duets from the first day.

This text is a summary of a diploma thesis supervised by Dr G. Anzenberger and Prof. R. D. Martin. The thesis (in German) may be requested from Alexandra Müller at the address below. A full publication in English is in preparation.

Alexandra Müller, Anthropologisches Institut, Universität Zürich-Irchel, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland.

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MURIQUI IN THE ITATIAIA NATIONAL PARK, BRAZIL



The Itatiaia National Park, situated in the Atlantic forest of the Serra da Mantiqueira in south-east Brazil, was created in 1937, and as such the first protected area in Brazil. Although quite frequently reported to occur in the Park over

the last decades (see, for example, Aguirre, 1971; Coimbra-Filho, 1972), concrete evidence for the presence of the murrelet, *Brachyteles arachnoides*, has been lacking and cast doubts on its continued survival there (Fonseca, 1994). Visiting the Park in

January 1995, I found a complete skeleton of *B. arachnoides* in the possession of Prof. Elio Gouvêa. The animal had been electrocuted while crossing transmission lines near to the Park's headquarters. This happened within the last five years, although due to the brevity of my visit I was unable to ascertain the exact date, which is, however, recorded in the Park's registers. Adding to the list of new localities reported by Martuscelli *et al.* (*Neotropical Primates*, 2(2): 12-15, 1994), confirmation of the continued existence of a population of murrelets in this Park of 30,000 ha, which is also contiguous with other forested areas, indicates yet another and significant stronghold for this threatened species.

Ibsen de Gusmão Câmara, Fundação Brasileira para a Conservação da Natureza (FBCN), Rua Miranda Valverde 103, 22281-000 Rio de Janeiro, Rio de Janeiro, Brazil.

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GERALD M. DURRELL, O.B.E, D.Sc. 1925-1995

Gerald Durrell, naturalist, writer, and founder of the Jersey Wildlife Preservation Trust (JWPT), died on the 30th January 1995. Few people have accomplished so much during their lifetime for the conservation of wildlife. The Jersey Zoo he set up in 1959 led the way for the establishment of the new role of zoos not only as breeding centres for the preservation of endangered species but as institutions which are deeply committed to the conservation of wildlife, through research, international training programmes, and *in situ* projects for reintroduction and the preservation of the habitat of the species under their care. Gerald Durrell argued that no species are difficult to

breed, it just being a matter of providing the right diets and captive environments. The research carried out at the Zoo has resulted in innumerable successes in establishing healthy breeding populations of otherwise rare and "difficult" animals, and has led the way for the organisation and scientific management of captive populations worldwide.

The International Training Programme for conservationists, zoo biologists and vets, most particularly from "habitat countries", was established in 1978, and the International Training Centre at Les Noyers was inaugurated by the Trust Patron, The Princess Royal, in 1984. Approximately 430 people from 72 countries have participated in the programme, involving residency and courses of up to 16 weeks; 94 of these came from Latin America, and 32 from Brazil. In 1989, the University of Canterbury, Kent, U.K., created the Durrell Institute of Conservation and Ecology, providing a follow-up course to the JWPT Training Programme, and leading to a Diploma in Endangered Species Management.

Wildlife Preservation Trust International (WPTI), based in Philadelphia, and Wildlife Preservation Trust Canada (WPTC), initiatives of Gerald Durrell, and which with JWPT comprise the Wildlife Preservation Trusts, were set up in 1971 and 1985, respectively, to raise funds and organize financing for *in situ* conservation programmes, aimed at following up the investment in trainees by helping them to put into action in their own countries the lessons they had learned in Jersey. This has resulted in the support of numerous research and conservation projects in Latin America, amongst them, and which are focussed on Neotropical primates, are a major survey of endangered arboreal mammals in the Atlantic forest of south-east Brazil (carried out by Ilmar B. Santos and William L. R. Oliver), support for the Rio de Janeiro Primate Centre (CPRJ), including the construction of an enclosure for muriquis, *Brachyteles* (Adelmar F. Coimbra-Filho), the reintroduction and research programme for the golden lion tamarin (Devra Kleiman and Benjamin

Beck), Rio de Janeiro, the Black Lion Tamarin Project (including research, management and environmental education) in São Paulo, Brazil (Claudio Valladares-Padua and Suzana Padua), the environmental education programme for the golden-headed lion tamarin (Maria Cristina Alves) and research on its ecology and behavior (James Dietz) in southern Bahia, Brazil, the Black-Faced Lion Tamarin Project (Vanessa Persson and Maria Lucia Lorini), support for wildlife surveys in Belize and the Belize Zoo and Tropical Education Center (Sharon Matola), a major primate survey in Mexico (Ernesto Rodríguez-Luna), and genetic studies of muriqui populations (Thomas Struhsaker). Illustrating well JWPT's philosophy of combining *ex situ* and *in situ* conservation programmes and its deep involvement in the conservation of the animals it breeds, is the leading

"On behalf of the whole IUCN family, I would like to express our sympathy to you on the death of the founder of the Jersey Wildlife Preservation Trust, Gerald Durrell. Gerald made a lasting impact on conservation, showing that zoos can be conservation organizations, and that the traditional tension between *in situ* and *ex situ* conservation can be bridged. He was one of the few visionaries in the conservation movement who did what everyone else thought was impossible, and thereby changed the nature of the zoo community for ever. We all owe him a tremendous debt of gratitude".

(Extract from a letter to Jeremy Mallinson, Director, Jersey Wildlife Preservation Trust, from David McDowell, Director General, The World Conservation Union (IUCN), Gland, Switzerland. 6 February 1995.)

role that it has played, especially through its Director, Jeremy J. C. Mallinson, in the establishment of the international committees for the breeding and conservation of lion tamarins, and their support for research, management, and education projects in their natural ranges. JWPT has carried out fund-raising activities specifically for lion tamarins, notably in such events as the annual visits to Jersey by the Pavilion Opera Company, organized by Anne Binney (Chairman of the JWPT Landscape Committee) and Marcus Binney (member of the JWPT Council), which raised money for a survey of the distribution of the golden-headed lion tamarin in 1992. In 1994, they raised £16,000 for the conservation of the gentle lemur, *Hapalemur*, and in 1995 performances by the Pavilion Opera Company will be providing money for the redevelopment of the facilities for marmosets and tamarins. The Lion Tamarins of Brazil Fund, aimed particularly at raising money from zoos participating in the lion tamarin breeding programs, was launched by Gerald Durrell in 1992, and has already provided for field projects for all four species. (see *Neotropical Primates*, 1(3):7-9, and 2(suppl.), December 1994).

The Jersey Wildlife Preservation Trust is pioneer and dynamic, always improving and moving

forward, and as such reflects the personality of its founder, who has left a legacy for which the zoo community, conservationists, the natural world, and Mankind will always be indebted.

Gerald Durrell - A Personal Perspective by Jeremy Mallinson

Like hundreds and thousands, if not millions of other people, I first came across Gerald Durrell through his writings.

It was 1958 and I had returned home to Jersey after spending some two and a half years in Southern Central Africa when my brother Miles, gave me 'My Family and Other Animals' as my Christmas present - along with a note informing me that Gerald Durrell was about to set up a zoo in the Island of Jersey, and that he was just the type of person that I would be sure to get on well with.

Little did I consider at the time how such a book would influence my future and sow the seeds of a lifetime dedication. Whereas Gerald Durrell had been bitten by what he referred to as 'zoomania' at the tender age of two and had decided by the time he was six that he wanted a zoo of his own, I, by comparison, was a late convert to recognising the real significance of a modern zoo in terms of conservation, education, and research.

Nevertheless, inspired by his humour and by his writings about so many different aspects of the animal kingdom and the places that he had visited, I decided to take a temporary summer job at the newly formed Jersey Zoological Park on 1st May 1959. What I had not bargained for was that it would not take long for me to fall under Gerald Durrell's charismatic spell and become one of his most ardent disciples.

It was Gerald Durrell's arrival on the island in June 1959, along with his collection of animals from Argentina, that provided us with our first encounter. It was indeed a 'treasure chest' of exotic animals with which he arrived at the zoo, ranging from a wealth of colourful parrots, black-necked and coscoroba swans, seriema birds and a giant anteater, to Claudius the tapir, all about which he subsequently wrote in one of his best-selling books - 'The Whispering Land'.

It was after this first meeting with Gerald that I soon came to appreciate the creative vision which led him, in the early summer of 1963, to create the Jersey Wildlife Preservation Trust.

It was Gerald Durrell who helped make the term 'conservation' a household word; he who promoted the development of captive breeding programmes - thereby changing the role of the modern zoo; he who saw the need to establish an international training centre to train conservationists from developing countries. It was Gerald Durrell who, through his 37 best-selling books, 12 television series and numerous appearances on individual radio and television programmes, had such a profound influence on people of all ages and in all walks of life.

Those of us who had the privilege of knowing him personally could not help but be greatly inspired by his integrity, wisdom, and breadth of vision. On the one hand he could be uproariously funny, saying the most amusing and sometimes outrageous things at the most unexpected time. Yet at other times he could be deeply profound about his conservation ambitions for the future.

Gerald was also a naturalist of the old school with a desire to know about all living things and to pass on his knowledge and passion to everyone who was willing to listen and learn. Similar to a large piece of blotting paper, he absorbed everything he was exposed to and which he encountered. But it is the great personal warmth which he generated whenever one was with him for which he will be particularly remembered. Such a quality represented his personal hallmark and will undoubtedly help to sustain all those who knew him for many years to come. And although such a phenomenal person is irreplaceable, the Trust could not be more fortunate to have Lee Durrell - a kindred spirit full of the curiosity of the field naturalist and the sharp, precise intelligence of the trained scientist - to carry on the Durrell name with her appointment as the Trust's Honorary Director.

As the Trust's Patron, the Princess Royal, recorded in her foreword to Gerald Durrell's book 'The Stationary Ark', written about the Trust's work; 'It beholds us all as guardians of the living world which we have inherited to see that we pass on this priceless inheritance to the next generations.' Gerald Durrell, a pioneer in conservation both by words and action, and by his remarkable abilities to delight and inspire an international audience, accomplished a great deal in his lifetime as a guardian of the living world. He sowed many seeds of awareness to millions of fans and left the world with a much greater understanding of the importance of living in harmony with the fauna

and flora that we have inherited and with which we share our planet.

His death, at the General Hospital on the afternoon of Monday 30th January, was not simply a loss for Jersey, or even the British Isles, but for the whole world. Apart from being my alter-pater of 36 years standing and one my finest friends, the international conservation community has undoubtedly lost one of its most significant ambassadors and the animal world its Francis of Assisi.

Reprinted with kind permission from 'Jersey Now' Magazine, Spring 1995, pp.8-9.

Jeremy J. C. Mallinson, Director, Jersey Wildlife Preservation Trust, Les Augrès Manor, Trinity, Jersey JE3 5BP, Channel Islands, GB.

CURSO - ECOLOGIA DA FLORESTA AMAZÔNICA

Ecologia da Floresta Amazônica, um curso intensivo em nível de pós-graduação, será realizado no período de 15 de julho a 16 de agosto de 1995. O curso visa a capacitação de pesquisadores para investigar e interpretar, em vários níveis, fenômenos ecológicos em contextos naturais e prever efeitos de intervenção humana, para fins de manejo e conservação. O curso segue o modelo da disciplina de pós-graduação ministrada pela Organização para Estudos Tropicais (OET), "Biologia Tropical: uma Abordagem Ecológica", que com sua forte ênfase na problemática da biodiversidade tropical, além de ser um grande sucesso como iniciação à pesquisa de campo, ajudou a catalisar o mundialmente reconhecido programa de conservação, em conjunto com ecoturismo, atualmente praticado na Costa Rica. O Curso será oferecido pela OET (um consórcio de 55 instituições norteamericanas e centro-americanas promovendo cursos de campo em espanhol e em inglês desde 1962) e os Programas de Ecologia da Universidade Estadual de Campinas (UNICAMP) e do Instituto Nacional de Pesquisas da Amazônia (INPA). Estas instituições contam com a ajuda das infra-estruturas do INPA e do Projeto Dinâmica Biológica de Fragmentos Florestais (PDBFF), da Smithsonian Institution, que administram estações e acampamentos de pesquisa na região de Manaus.

O Curso tem como objetivos gerais prover os seguintes tópicos: 1) a biodiversidade excepcional dos organismos da Floresta Amazônica; 2) a

heterogeneidade de habitats dentro das florestas úmidas incluindo as de terra firme, várzea e igapó; 3) a gama de metodologias empregadas para conduzir pesquisas ecológicas no ambiente tropical úmido; e 4) a aplicação dos métodos e princípios científicos em situações em que o conhecimento prévio e apoio logístico são mínimos. O Curso é realizado inteiramente no campo. Possui pesquisas diárias, com etapas de planejamento, coleta e análise de dados, e apresentação vespertina dos resultados. Os alunos compartilham condições simples e rústicas nas bases principais do INPA (Reserva Ducke, Estação Experimental de Silvicultura Tropical, e os barcos) e do PDBFF. O curso culmina com um projeto individual de pesquisa de oito dias em que cada aluno planeja e implementa um estudo.

Candidatos ao Curso de qualquer país devem apresentar até 15 de abril de 1995 (data de postagem): 1) Ficha de pré-inscrição padrão; 2) carta de exposição de motivos, descrevendo seus interesses e os motivos de participação; 3) currículo atualizado; 4) Histórico escolar; 5) cópia de Diploma de Graduação; 6) duas cartas de recomendação; 7) esboços curtos de dois projetos alternativos para desenvolver num prazo de oito dias (com introdução, e justificativa, hipóteses a serem avaliadas, metodologia, referências e lista de materiais necessários, indicando aqueles que podem ser fornecidos pelo próprio aluno). O Curso tem 20 vagas. Preferência é dada para alunos no início de pós-graduação em ecologia ou numa área relacionada de trabalho nos neotrópicos. Os alunos aceitos poderão se matricular como alunos especiais no Curso de Pós-Graduação da UNICAMP e receber 5 créditos (= 225 horas e atividades) acadêmicos. O Curso será realizado em Português.

Os Coordenadores do Curso são: Dr Renato Cintra (INPA), Dr Márcio Martins (Universidade do Amazonas) e Dr Claude Gascon (PDBFF). O Curso fornece alimentação, redes de dormir, alojamento e transporte local enquanto no campo. O Curso também tenta providenciar a cada participante dos países neotropicais uma passagem aérea de ida e volta da cidade da instituição à qual o aluno está vinculado até Manaus. Durante a disciplina, não será permitida a coleta de material biológico sem as devidas autorizações (e.g., INPA, PDBFF, Ibama). A divulgação do resultado da seleção ocorrerá na segunda quinzena de maio de 1995.

Para maiores informações: Dr Claude Gascon, PDBFF/INPA, Coordenação de Pesquisas em Ecologia, Instituto Nacional de Pesquisas da

Amazônia (INPA), Caixa Postal 478, 69011-970 Manaus, Amazonas, Brasil. Tel: (092) 1148, Fax: (092) 642-2050.

PRIMATE CONSERVATION INCORPORATED

Primate Conservation Incorporated (PCI) is a new non-profit making organization established to fund field research in support of wild populations of primates. PCI will grant seed monies for graduate students and primatologists to study rare and endangered primates. Priority will be given to projects that study the least known and most endangered species in their natural habitat. The results of this original research will be directed to larger organizations which can in turn provide the resources necessary to implement conservation action plans to save primate species and their habitats. PCI is open to all appropriate projects but is presently particularly interested in funding studies of guenons, tarsiers and Douc langurs. For further information: Primate Conservation, Inc., Box 1707, East Hampton, New York 11937, USA. From *IPS Newsletter*, 21(3), December 1994, p.2.

Primate Societies



The European Federation for Primatology (EFP) was founded on December 17, 1993, in Strasbourg, France, during a meeting hosted by Nicolas Herrenschildt and chaired by Bertrand L. Deputte. Two preliminary meetings, organized during the XIVth IPS Congress of the International Primatological Society in Strasbourg (August 1992), had demonstrated the need to develop more ties between the European Primatologists, and most particularly, with colleagues from eastern Europe. The EFP is constituted as a network which includes the five European Primatological Societies, and four groups of primatologists from countries with a limited number of primatologists but no national society. Each Society and Group affiliated has a representative in the Federation. Members of the affiliated Societies and Groups are, *de facto*, members of the EFP.

The purpose of the EFP is as follows: 1) to coordinate actions related to primatology between

the different European Societies including, a) circulation of information between the different national primatological societies and primatology groups, b) meetings of the different national societies, specialist groups, along with events such as workshops, and c) scientific activities, research, and educational projects relevant to primatology; 2) to promote rational management of captive primates and to make primate subjects and study sites available to a maximum number of students and researchers; 3) to provide the Council of Europe and other European institutions with experts on all issues related to primatology; 4) to participate, through the Council of Europe, in decisions relevant to primate trade and primate captive breeding; and 5) to promote the establishment of national primatological societies, national groups, and European specialist groups of primatologists.

The Council of the Federation meets each year at the annual meeting of one of the affiliated Societies or Groups. The 1994 Meeting was held in Montpellier, France, and the 1995 Meeting will be hosted by the Primatological Group in Prague, Czech Republic.

Several important steps have already been taken. The international scientific publication *Folia Primatologica* has been established as the Official Journal of the European Federation for Primatology. The EFP participated in the European Union Working Party for the "Preparation of the Multilateral Consultation of the Parties to the European Convention on the Protection of Vertebrate Animals Used in Experiments or Other Scientific Purposes". This meeting was held at the European Council in Strasbourg in September 1994. The EFP will be sponsoring two scientific meetings in 1995: "Primate Ontogeny", an International Symposium organized by the Czech Group in Trest, 10-15 September 1995; and an International Conference and Workshop on the Biology and Conservation of Prosimians, to be held at the North of England Zoological Society, Chester, UK, 14-16 September 1995.

The composition of the Council of the European Federation for Primatology is currently as follows: *President* Bertrand L. Deputte, Société Francophone de Primatologie, CNRS/URA 373, Université de Rennes I, France; *General Secretary* Régine Vercauteren Drubbel, Groupe Belge de Primatologie, Université Libre de Bruxelles, Belgium; *Officers*: Fernando Colmenares, Asociación Española de Primatología, Universidad Computense, Madrid; Robin Crompton, Primate

Society of Great Britain, University of Liverpool, UK; Jan A. R. A. M. van Hooff, Dutch Group of Primatologists, Rijksuniversiteit Utrecht, The Netherlands; Robert D. Martin, Swiss Group of Primatologists, Universität Zürich-Irchel, Zürich, Switzerland; Paul Winkler, Gesellschaft für Primatologie, Universität Göttingen, Germany; Marina Vancatová, Primatological Group in Czech Republic, Research Institute for Pharmacy and Biochemistry, Konarovice, Czech Republic; Elisabetta Visalberghi, Associazione Primatologica Italiana, Istituto di Psicologia del C.N.R., Roma, Italy.

Some European countries already have links with Latin American primatological research groups, and the EFP hopes to establish official contacts with South American primatological societies in the future.

Bertrand L. Deputte, President, European Federation for Primatology, Lab. Primatologie-Biologie évolutive, CNRS URA 373, Université de Rennes I, Station Biologique, 35380 Paimpont, France.

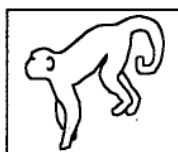


INTERNATIONAL PRIMATOLOGICAL SOCIETY

The International Primatological Society will be holding its XVth Congress from 11-17th July 1996, at the University of Wisconsin, Madison, in collaboration with the American Society of Primatologists. The organizer is Dr John Hearn, Director of the Wisconsin Regional Primate Research Center. IPS is predicting a record attendance; it will undoubtedly be the best attended IPS Congress ever. The aims of IPS are to encourage all areas of nonhuman primatological scientific research, to facilitate cooperation among scientists of all nationalities engaged in primate research, and to promote the conservation of all primate species. Apart from the Congresses, held every two years (the 1998 Conference will be held in Madagascar), IPS is also affiliated with the publication of the *International Journal of Primatology* (six issues per volume and available to members at a substantial discount), and circulates twice yearly newsletters to its members. A Conservation Committee promotes and coordinates the Society's programs dealing with conservation and habitat protection, and, likewise, a Captive Care and Breeding Committee plays an active role in acquiring and disseminating

information on ethical and welfare issues and on new technology dealing with captive care and primate breeding. Regional Secretaries represent the special concerns of the Society and its members in different geographical areas; Africa, Asia, Europe and the Americas. The current officers of IPS are as follows: *President* Alison B. Jolly (Princeton University, New Jersey); *Secretary General* Sally Mendoza (University of California, Davis); *Treasurer* Rheinhold Hutz (University of Wisconsin, Milwaukee); *Vice President for Conservation* Jeanne Altmann (Chicago Zoological Society, Brookfield); *Vice President for Captive Care* Hilary O. Box (University of Reading, Reading); *Vice President for Membership* Dorothy Fragaszy (University of Georgia, Athens); *Regional Secretary for Asia* Jaka Gurmaya Kankun (UNPAD, Indonesia); *Regional Secretary for Africa* Nicolas Mwanda Ndunda (CREF, Zaire); *Regional Secretary for the Americas* Ernesto Rodríguez-Luna (Universidad Veracruzana, Mexico); *Regional Secretary for Europe* Régine Vercauteren Drubbel (European Federation for Primatology, Brussels). We encourage all primate researchers and those working actively for primate conservation and welfare to become members of the Society. Contact: Dorothy M. Fragaszy, IPS Vice President for Membership, Psychology Department, University of Georgia, Athens, Georgia 30602, USA. Fax: (706) 542-3275, e-mail cmspsy37@uga.cc.uga.edu.

VII CONGRESSO BRASILEIRO DE PRIMATOLOGIA



O VII Congresso Brasileiro de Primatologia será realizada nos dias 23-28 de julho de 1995 na Universidade Federal do Rio Grande do Norte, Natal, Rio Grande do Norte. A programação do Congresso incluirá sessões de comunicações coordenadas, mini-cursos, painéis, conferências e mesas-redondas. O prazo para envio dos resumos foi adiado para o dia 28 de abril de 1995. Haverá um espaço reservado à exposição de fotografias de e sobre primatas para os pesquisadores que participarem do evento. Contato: Secretaria do VII Congresso Brasileiro de Primatologia, Universidade Federal do Rio Grande do Norte, Centro de Biociências, Setor de Psicobiologia, Caixa Postal 1511, 59072-970 Natal, Rio Grande do Norte, Brasil. Tel: 084 206 1147, Fax: 084 231 9587, e-mail: fximenes@ncc.ufm.br.

Recent Publications

SPECIAL BILINGUAL EDITION OF PRIMATE REPORT - PRIMATES OF PERU

A bilingual edition (English/Spanish) of the *Primate Report* (40) on the Primates of Peru, by Rolando Aquino and Filomeno Encarnación, both of the Universidad Nacional Mayor de San Marcos, Lima, and C.I.IVITA Research Station, Iquitos, Peru, provides an up-to-date overview of the extant primates of Peru. Following short introductory chapters on the geography of Peru, tropical forests and their fauna, and on general aspects of platyrrhine systematics, the following information is provided for each Peruvian primate species: common and local names, external characteristics; general information (e.g., habitat, diet, group size, and social structure), status, and distribution. An extensive list of references provides an overview of primatological field research carried out on Peruvian primates.

La edición bilingüe (inglés/español) de la revista *Primate Report* (40) presenta una sinopsis actual de los primates del Perú, compilado por Rolando Aquino y Filomeno Encarnación, de la Universidad Nacional Mayor de San Marcos, Lima, y C.I. IVITA, Iquitos. Los breves capítulos de la introducción tratan de la geografía del Perú, de los bosques tropicales y su fauna, y de aspectos generales de la sistemática de los platirinos. Después se presenta las siguientes informaciones para cada especie de primate de Perú: nombres comunes y locales, rasgos característicos, informaciones generales (p.ej., habitat, dieta, tamaño de grupos, estructura social), situación actual, y distribución. La lista de referencias bibliográficas es muy extensa y cubre todas las publicaciones actuales sobre investigaciones primatológicas en el Perú.

Primates of Peru - Los Primates del Peru, by Rolando Aquino and Filomeno Encarnación. *Primate Report*, (40), 1994, 127pp., 14 maps, 19 figs, 4 plates. Price US\$12.00 or DM18.00 (including postage and packing, delivery by surface mail). Available from: Erich Goltze, GmbH, Postfach 1944, 37009 Göttingen, Germany. Fax: +49 551-5067622.

LA CIENCIA Y EL HOMBRE - SPECIAL EDITION ON NEOTROPICAL PRIMATES

La Ciencia y el Hombre is a quarterly scientific journal of the Universidad Veracruzana, Xalapa, Veracruz, Mexico, edited by Marco Tulio Aguilera. Number 18, September-December 1994, was dedicated to articles on Neotropical Primates. Price: N\$10.00 M.N. Annual subscription: N\$30.00 M.N. Overseas: USA, Canada and Latin America US\$35.00; Europe US\$60.00. Further information: *La Ciencia y el Hombre*, Apartado Postal 97, Xalapa, Veracruz, Mexico. The articles included are as follows: Contreras, J.M. El descubrimiento histórico de los póngidos: el Pongo, pp.7-21; Serio Silva, J.C. Primates: primeros estudios de campo, pp.23-29; Romero, C.A.G. Consideraciones acerca de los programas de conservación en los zoológicos: el caso de los primates, pp.31-35; Wong, G. and Carillo, E. Manejo y conservación del mono tití (*Saimiri oerstedii citrinellus*) en Costa Rica, pp.37-42; Estrada, A. and Coates-Estrada, R. La contracción y fragmentación de las selvas y las poblaciones de primates silvestres: el caso de Los Tuxtlas, Veracruz, pp.45-70; Espinosa, D.C. Monos aulladores (*Alouatta palliata*): evaluación clínica de dos grupos capturados en hábitat fragmentado, pp.71-87; Mayagoitia, L. and Flores-Treviño, A.A. Conducta sociosexual: el hostigamiento a la conducta sexual en macacos cola de muñón, pp.89-103; Domínguez-Domínguez, L.E. Preferencias alimenticias y comportamiento agonístico de *Alouatta palliata* en condiciones de cautiverio, pp.105-125; Sánchez, E.C. Descripción del comportamiento de un grupo de mono aullador, pp.127-149; Cortés-Ortiz, L., Rodríguez-Luna, E., Martínez-Morales, M. and Sánchez, E.C. Parámetros demográficos y reproductivos de un grupo de monos aulladores (*Alouatta palliata*) en semilibertad, pp. 151-166.

ORYX - SPECIAL ISSUE ON WILDLIFE USE IN THE NEOTROPICS

Number 1 of Volume 29 (January 1995) of *Oryx*, the Journal of the Fauna and Flora Preservation Society (FFPS), was given over to a series of articles on wildlife use in the Neotropics. The Guest Editors were Kent H. Redford (The Nature Conservancy, Virginia) and Richard E. Bodmer (University of Florida, Gainesville). The articles included are as follows: Novaro,

A.J. Sustainability of harvest of culpeo foxes in Patagonia. pp.18-22; Bodmer, R.E. Priorities for the conservation of mammals in the Peruvian Amazon, pp.23-28; Stearman, A.M. and Redford, K.H. Game management and cultural survival: the Yuquí Ethnodevelopment Project in lowland Bolivia, pp.29-34; Suárez, E., Stallings, J. and Suárez, L. Small-mammal hunting by two ethnic groups in north-western Ecuador, pp.35-42; Ráez-Luna, E.F. Hunting large primates and conservation of the Neotropical rain forests, pp.43-48; Jorgensen, J.P. Maya subsistence hunters in Quintana Roo, Mexico, pp.49-57; Alvard, M. Shotguns and sustainable hunting in the Neotropics, pp.58-66.

BOOKS

Aotus, The Owl Monkey, edited by J. F. Baer, R.E. Weller and I. Kakoma. Academic Press, San Diego, 1994, 380pp. ISBN 0-12-072405-7. Price US\$74.95. This book includes the following chapters: Ford, S.M. Taxonomy and distribution of the owl monkey, pp. 1-57; Aquino, R. and Encarnación, F. Owl monkey populations in Latin America: field work and conservation, pp.59-95; Wright, P.C. The behavior and ecology of the owl monkey, pp.97-112; Dixon, A.F. Reproductive biology of the owl monkey, pp.113-132; Baer, J.F. Husbandry and medical management of the owl monkey, pp.133-164; Malaga, C.A. Handrearing the owl monkey, pp.165-176; Weller, R.E. Infectious and noninfectious diseases of owl monkeys, pp. 177-215; Collins, W.E. The owl monkey as a model for malaria, pp.217-244; King, N.W. The owl monkey in oncogenic virus research, pp. 245-261; Ogden, T.E. Ophthalmologic research in the owl monkey, pp.263-286; Allman, J., Joo, R. and Sereno, M. The functional organization of visual cortex in owl monkeys, pp.287-320; Kaas, J.H. The organization of sensory and motor cortex in owl monkeys, pp.321-351; Tantalcan, M. and Gozalo, A. Parasites of the *Aotus* monkey, pp. 353-374. Available from: Academic Press, 6277 Sea Harbor Drive, Orlando, Florida 32887, USA. Tel: 800 545 2522, Fax: 800 874 6418.

Motherhood in Human and Nonhuman Primates: Biological and Social Determinants, edited by Christopher Pryce, Robert Martin and David Skuse, S.Karger, Basel, viii + 180pp, 1995. Hard cover. To be published in 1st quarter 1995. Normal price: US\$120.00. Pre-publication price: US\$78.50. The Proceedings of the 3rd Schultz-Beigert Symposium at Kartause

Ittingen, 26 September - 1 October 1994. Following an introduction by C.R.Pryce, "Determinants of motherhood in human and nonhuman primates: a biosocial model", the 16 chapters are divided into three sections. *Section 1. Mother-Infant Behavior as a Life-History Strategy.* Phylogenetic aspects of primate reproduction: the context of advanced maternal behavior - R.D.Martin; The evolution and adaptive significance of hominid maternal behavior - R.Foley; Ecological and social correlates of maternal expenditure on infant growth in Haplorhine primates - C. Ross and A. Maclarnon; The influence of ecology and energetics on primate mothers and infants - P.Lee and J.Bowman; Maternal styles in Old World primates; their adaptive significance - M. Gomendio. *Section 2. Causes and Correlates of Mother-Infant Behavior.* Neurochemical changes accompanying the reproductive process: their significance for maternal care in primates and other mammals - B.Keverne; Prepartum sex steroid hormones and infant care, abuse and neglect in primiparous marmoset mothers - C. R. Pryce; Experiential and hormonal correlates of care-giving in female rhesus monkeys - S.Holman and R.Goy; Experience and hormones; their significance for infant directed behavior in captive gorillas - N. Bahr; Sensory and hormonal control of maternal behavior in rat and human mothers - A. Fleming; Maternal personality, marital quality, social support and infant temperament: their significance for infant-mother attachment in human families - J. Belsky; Risk factors for child abuse and neglect in human parents - D. Halpérin; Depression and human motherhood: the significance of biology, psychodynamics and socioculture - J. Cox. *Section 3. Consequences of Maternal Well-Being and Behavior for Infant Development.* Maternal exposure to prenatal stress: its significance for infant behavior in pigtail macaques - J. Worlein; The significance of social attachment in primate infants: the caregiver-infant relationship and volition - G. Kraemer; Failure-to-thrive in human infants: the significance of maternal well-being and behavior. Available from: S.Karger AG, Alschwilerstrasse 10, P.O.Box, CH-4009 Basel, Switzerland, Fax: (061) 306 1234, or S.Karger Publishers, Inc., 26 West Avon Road, P.O.Box 529, Farmington, CT 06085, USA. Postage and handling free with prepayment.

New World Primate Regional Collection Plan for North America. 1st Edition, prepared by the New World Primate Taxon Advisory Group (TAG) of the American Association of Zoological Parks and Aquariums, September 1994, and edited

by Anne Baker, Burnet Park Zoo, Syracuse, NY. 20pp. + 3 appendices. This Regional Collection Plan identifies captive breeding priorities for Neotropical primates in the United States, thereby providing direction to institutions as they develop their collection plans. Establishing priorities on a regional basis helps to insure that captive habitat is used to support sufficient numbers of specified taxa for the maintenance of viable populations. Contact: Anne Baker, Burnet Park Zoo, 1 Conservation Place, Syracuse, New York 13204, USA.

Amazonian Ethnobotanical Dictionary, by James Alan Duke and Rodolfo Vasquez, CRC Press, Inc., Boca Raton, 1994. Available from CRC Press, Inc., 2000 Corporate Blvd., N.W., Boca Raton, Florida 33431, USA.

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- Lunn, S.F. The relative merits of the marmoset as a model in reproductive medicine. pp.6-7.
- Ferhenbach, A., Einspanier, A. and Hodges, J.K. Paracrine and autocrine events in the corpus luteum of the marmoset monkey (*Callithrix jacchus*): studies by *in vitro* analysis. p.7.
- Watkins, P. and Warren, B.F. Primate models of inflammatory bowel disease. p.7.

1994. Contact: Jeff Meldrum, Departments of Biological Sciences and Anthropology, Campus Box 8007, Idaho State University, Pocatello, Idaho 93209-8007, USA. Tel: (208) 236-4379, Fax: (208) 236-4570, e-mail: meldd@fs.isu.edu.

X ENCONTRO DE ZOOLOGIA DO NORDESTE, 2-5 April de 1995, Universidade Federal da Paraíba, João Pessoa, Paraíba. Organized in conjunction with the Sociedade Nordestina de Zoologia (SNZ). Contact: Priscila Muniz Dijk, Comissão Organizadora X EZNE, Universidade Federal da Paraíba, CCEN/Depto. de Sistemática e Ecologia, 58.059-900 João Pessoa, Paraíba, Brazil.

PRIMATE SOCIETY OF GREAT BRITAIN - SPRING MEETING, 5-6 April 1995, Institute of Cell, Animal and Population Biology, Edinburgh University. The first day will consist of papers dealing with current field studies of primates. The second day second day will be held at Edinburgh Zoo, with primate staff talking of their work. Contact: Elizabeth Rogers, ICAPB, Ashworth Building, University of Edinburgh, West Mains Road, Edinburgh EH9 3JT, Scotland. Tel: +44 31 650-5510, Fax: +44 31 650-6564.

Meetings

1995

SYMPOSIUM ON THE HEALTH AND NUTRITION OF NEW WORLD PRIMATES, 12 March 1995, Louisville Zoo, Kentucky. Organized by the New World Primate Taxon Advisory Group of the American Zoo and Aquarium Association (AZA). Preceding the Great Lakes Regional Meeting of the AZA. The one-day symposium will emphasize primate life cycles (i.e., pregnancy, lactation, neonatal and geriatric). To be held at the Seelbach Hotel, Louisville, KY. Contact: Dr Peregrine Wolff, Minnesota Zoological Garden, 1300 Zoo Boulevard, Apple Valley, Minnesota 55124, USA. Tel: (612) 431 9361, Fax: (612) 431-9367.

SYMPOSIUM ON NEOTROPICAL PRIMATE PHYLOGENY, 28 March-1 April 1995. Oakland, California. In conjunction with the American Association of Physical Anthropology. Focus: New World primate relationships and evolutionary history. Abstract deadline: 30 June

2ND INTERNATIONAL CONFERENCE ON WILDLIFE MANAGEMENT IN AMAZONIA, 7-11 May, 1995, Iquitos, Peru. Organized by the Tropical Conservation and Development Program, Center for Latin American Studies, University of Florida, Gainesville, and Facultad de Ciencias Biológicas, Universidad Nacional de la Amazonia Peruana. The conference will address wildlife and fisheries management in Amazonia by focussing on the importance of local community participation and the development of economic alternatives to conserve habitats and prevent extinctions. For more information, contact: Conference, TCD Program, P.O.Box 115531, Gainesville, FL 32611-5531, USA, Tel: (904) 392-6548, Fax: (904) 392-0085, or Coordinador Nacional de Congreso, Facultad de Ciencias Biológicas, Universidad Nacional de la Amazonia Peruana, Pl. Serafin Filomeno s/n, Iquitos, Peru, Tel: (51-94) 23-6121, Fax: (51-94) 23-4723.

V SIMPOSIO DE LA ASOCIACIÓN MEXICANA DE PRIMATOLOGIA Y III REUNIÓN DE LA SOCIEDAD LATINOMERICANA DE PRIMATOLOGIA, 23 al 26 de mayo de 1995, Puebla, México. Para mayor información contactar con Ernesto Rodríguez Luna a: Apartado Postal 566, C.P.91000,

Xalapa, Veracruz, México. Tel./Fax: (28) 12-57-48, e-mail: primates@bugs.invest.uv.mx.

18TH MEETING OF THE AMERICAN SOCIETY OF PRIMATOLOGISTS, 21-24 June 1995, Safari Resort, Scottsdale, Arizona. Hosted by the Primate Foundation of Arizona and Arizona State University. Abstract deadline: 13 January 1995. Contact for registration with abstract: Evan Zucker, ASP Program Chair, Department of Psychology, Box 194, Loyola University, 6363 St. Charles Avenue, New Orleans, LA 70118, USA. Tel: (504) 865-3255. Contact for registration (no abstract): Jo Fritz, Primate Foundation of Arizona, P.O.Box 20027, Mesa, AZ 85277-0027, USA.

VII CONGRESSO BRASILEIRO DE PRIMATOLOGIA, 23-28 de julho de 1995, Universidade Federal do Rio Grande do Norte, Natal, Rio Grande do Norte. A programação do Congresso incluirá sessões de comunicações coordenadas, mini-cursos, painéis, conferências e mesas-redondas. Prazo para envio dos resumos: 28 de abril de 1995. Haverá um espaço reservado à exposição de fotografias de e sobre primatas para os pesquisadores que participarem do evento. Contato: Secretaria do VII Congresso Brasileiro de Primatologia, Universidade Federal do Grande do Norte, Centro de Biociências, Setor de Psicobiologia, Caixa Postal 1511, 59072-970 Natal, Rio Grande do Norte, Brasil. Tel: 084 206 1147, Fax: 084 231 9587, e-mail: fximenes@ncc.ufm.br.

24TH INTERNATIONAL ETHOLOGICAL CONGRESS, 10-17 August 1995, Honolulu, Hawaii. Sponsored by the University of Hawaii. Contact: Conference Secretariat, 800 N. W. Loop 410, Suite 150-S, San Antonio, TX 78216-5674, USA. Tel: (210) 341-8131, Fax: (210) 341-5252, e-mail: iec@zoogate.zoo.hawaii.edu.

INTERNATIONAL SYMPOSIUM ON PRIMATE ONTOGENY, 10-15 September 1995, Congress Castle of Czech Academy of Sciences, Trest, Czech Republic. Organized by the Primatological Group in Czech Republic of the Czech Anthropological Society, in cooperation with the Research Institute for Pharmacy and Biochemistry. The aim is to discuss primate ontogeny as an integral process to help the future development of an interdisciplinary approach, focussing on variability of growth and developmental processes. All topics from from traditional branches of primatology and morphology, growth, reproductive biology, ethology, genetic and molecular biology,

physiology, ecology, or evolutionary primatology and anthropology are welcomed. Contact: Dr Marina Vancatová, VÚFB Konárovice, 28125 Konárovice, Czech Republic. Fax: 42 321 26246.

INTERNATIONAL CONFERENCE ON HABITAT FRAGMENTATION AND INFRASTRUCTURE AND THE ROLE OF ECOLOGICAL ENGINEERING, 17-21 September 1995, Holiday Inn, Maastricht, The Hague, Netherlands. In cooperation with The International Ecological Engineering Society (IFES) and The Ecological Society of the Netherlands and Belgium (NEVECOL). Contact: Congress Office ASD, P.O.Box 40, 2600 AA Delft, The Netherlands. Tel: +31 15 120234, Fax: +31 15 120250.

4TH CONGRESS OF THE GESELLSCHAFT FÜR PRIMATOLOGIE (GFP), 20-24 September 1995, Kassel, Germany. The main topic of the Congress will be the interaction between primatological field and laboratory research, for example, the application of laboratory-based physiological, endocrinological and genetic methods in primate field research. Papers and posters on any other primatological topics are welcome. For more information contact: Prof. Dr Christian Welker, Zoologie und Vergl. Anatomie, Primatenethologie, Universität Kassel, D-34109 Kassel, Germany. Fax: + 49 561 804 4604.

1995 ANNUAL MEETING OF THE CONSERVATION BREEDING SPECIALIST GROUP (CBSG), 28 September-1 October 1995, Zoological Society of Ireland, Dublin. Secretariat/ Correspondence: 1995 Annual Meeting of the CBSG, c/o Conference Management Services, 26 Temple Lane, Dublin 2, Ireland.

III CONGRESO LATINOAMERICANO DE ECOLOGIA, 22-28 Octubre 1995, Universidad de Los Andes, Merida, Venezuela. Los resúmenes de los trabajos a ser presentados deben ser enviados antes del 30 de Julio de 1995 (Ponencia oral o de Cartel). Los idiomas oficiales: Español y Portugués. Se aceptarán ponencias en Inglés y Francés, esperándose contar con sistemas de traducción simultánea. Inscripciones: Hasta 30/12/94 - Profesionales US\$70.00, Estudiantes de postgrado US\$40.00, Estudiantes de pregrado US\$30.00; Hasta 30/05/95 - Profesionales US\$85.00, Estudiantes de postgrado US\$55.00, Estudiantes de pregrado US\$45.00; Al Congreso - Profesionales US\$100.00, Estudiantes de postgrado US\$70.00, Estudiantes de pregrado US\$60.00. Informaciones: Dr Jaime E. Péfaur, Secretario Ejecutivo, III Congreso Latinoamericano de Ecología, Facultad

de Ciencias, Universidad de Los Andes, Merida, Venezuela 5101. Tel: (58)(74) 401305, Fax: (58)(74) 401286, e-mail: clae@ula.ve.

PRIMATE SOCIETY OF GREAT BRITAIN (PSGB) WINTER MEETING: BIOLOGY AND CONSERVATION OF NEW WORLD PRIMATES, 29 November 1995, Zoological Society of London, London. Contact: Hilary O. Box, Department of Psychology, University of Reading, 3 Earley Gate, Whiteknights Road, Reading RG6 2AL, Berkshire, UK. Tel: +44 734 875123, Fax: +44 734 316604.

1996

XVITH CONGRESS OF THE INTERNATIONAL PRIMATOLOGICAL SOCIETY, 11-17 August 1996, University of Wisconsin, Madison, Wisconsin. In collaboration with the American Society of Primatologists. Contact: Dr John P. Hearn, Congress Organizer, Wisconsin Regional Primate Research Center, University of Wisconsin, 1223 Capitol Court, Madison, Wisconsin 53715-1299, USA. Fax: (608) 263 4031.

IUCN WORLD CONSERVATION CONGRESS, 14-23 October 1996, Montreal Conference Centre, Montreal, Canada. Contact: John Burke, Director of Communications, IUCN The World Conservation Union, rue Mauverney 28, 1196 Gland Switzerland. Tel: +41 22 999 0123.

Contributions

We would be most grateful if you could send us information on projects, research groups, events (congresses, symposia, and workshops), recent publications, activities of primatological societies

and NGOs, news items or opinions of recent events and suchlike, either in the form of manuscripts (double-spaced) or in diskettes for PC compatible text-editors (MS-Word, Wordperfect, Wordstar). Articles, not exceeding six pages, can include small black-and-white photographs, figures, maps, tables and references, but please keep them to a minimum.

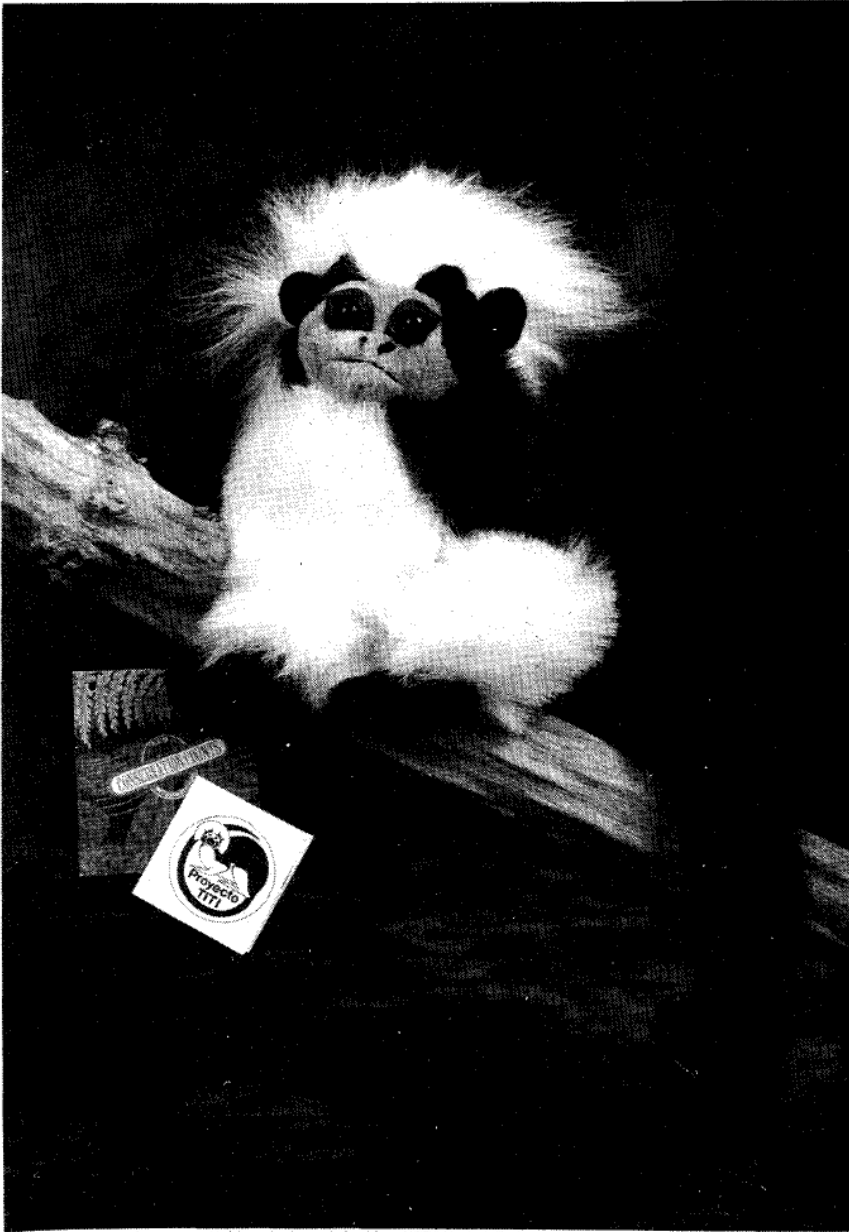
Please send contributions to: **ANTHONY RYLANDS**, Departamento de Zoologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, 31270-901 Belo Horizonte, Brazil, Fax: (031) 441-1412, or c/o Conservation International, Avenida Antônio Abrahão Caram 820/302, Pampulha, 31275-000 Belo Horizonte, Minas Gerais, Brazil, Fax: (031)441-2582 or **ERNESTO RODRÍGUEZ LUNA**, Parque de La Flora y Fauna Silvestre Tropical, Universidad Veracruzana, Apartado Postal 566, Xalapa, Veracruz 91000, México, Fax: 52 (28) 12-5748.

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Fundação Biodiversitas: cdcb@ax.apc.org

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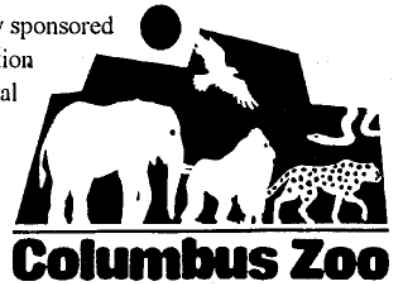


Cotton-top tamarins are one of the most endangered primates in Colombia today. Efforts to help preserve this species have focused on working with local communities and developing effective education and public awareness campaigns in the regions where wild populations still survive. To assist in supporting the educational activities of *Proyecto Titi*, these cotton-top tamarin stuffed toys are available for purchase (US\$10.00 in the U.S., and US\$13.00 outside the U.S., including postage). Please send orders to Dr Anne Savage, Roger Williams Park Zoo, 1000 Elmwood Avenue, Providence, Rhode Island 02907, USA. Checks payable to "Roger Williams Park Zoo Research - Proyecto Titi".



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NEOTROPICAL PRIMATES

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