CONVENCION SOBRE EL COMERCIO INTERNACIONAL DE ESPECIES AMENAZADAS DE FAUNA Y FLORA SILVESTRES

Sexta reunión de la Conferencia de las Partes

Ottawa (Canadá), del 12 al 24 de julio de 1987

Interpretación y aplicación de la Convención

Comercio del marfil del elefante africano

INFORME DE LA SECRETARIA SOBRE EL FUNCIONAMIENTO DEL SISTEMA DE CUPOS

1. En su quinta reunión (Buenos Aires, 1985), la Conferencia de las Partes aprobó la Resolución Conf. 5.12, "Comercio del marfil del elefante africano", conforme a la cual se establecieron nuevos procedimientos para el control del comercio internacional del marfil del elefante africano. El conjunto de estos procedimientos se denomina "sistema de cupos de exportación del marfil", y su elemento clave es la posibilidad que se da a cada país que tenga una población de elefante africano y que desee exportar marfil no trabajado, de establecer un cupo anual para la exportación de marfil.

2. Los países productores que no son Parte en la Convención también pueden presentar un cupo de exportación, y todo Estado que no sea Parte y que desee importar, exportar o reexportar marfil no trabajado deben cumplir todas las disposiciones de la Resolución. A menos que un país que no es Parte haya indicado lo contrario, se supondrá que no se está ajustando a lo dispuesto en la Resolución.

3. Se encargó a la Secretaría de coordinar la aplicación del sistema, con inclusión del mantenimiento de una base central de datos, la recepción y notificación de los cupos anuales de los países productores, la elaboración de un manual de procedimientos para la aplicación del sistema y la prestación de asesoramiento sobre la situación en materia de conservación del elefante africano. La Secretaría elaboró un manual de aplicación titulado "Procedimientos relativos al control del comercio del marfil", que se distribuyó a todos los países, fueran o no Parte en la Convención, en noviembre de 1985. Se concluyó y distribuyó el informe "Establecimiento de cupos de exportación de marfil de Africa y procedimientos de control correspondientes", elaborado por Rowan B. Martin (el proyecto de este informe fue distribuido en la reunión de Buenos Aires con la signatura Inf. 5.3). Estos documentos fueron elaborados en los tres idiomas de trabajo de CITES, a saber, inglés, francés y español. A principios de 1986, se contrató a un coordinador que trabaja a tiempo completo gracias a las contribuciones recibidas de una asociación de comerciantes, dos particulares y un gobierno (véase el documento Doc. 6.24, Financiación de la coordinación por parte de la Secretaría de los controles del comercio del marfil del elefante africano).

En diciembre de 1985, se comenzó una serie independiente de "Notificaciones sobre el marfil" para difundir información sobre los cupos de exportación y los controles del comercio del marfil. Estas han sido distribuidas a las Partes y a los países que no son Parte pero que colaboran con CITES, así como a los demás organismos o particulares interesados, incluidas las asociaciones de comerciantes de marfil.

4. El primer año de aplicación del cupo de exportación del marfil fue 1986. A continuación figura un resumen de los cupos para 1986 y 1987 (a partir del 15 de junio de 1987), así como de las cifras sobre el comercio correspondientes a 1986, obtenidas a partir de los permisos e informes recibidos:

CUPOS DE EXPORTACION DEL MARFIL

(N) = País que no es Parte

País	Cupo para 1986			Cupo para 1987	
	No. de colmillos	Observ.	Export.	No. de colmillos	Observ.
Angola (N)	0			0	
Benin	0			0	
Botswana	520		64	520	
Burkina Faso(N)	0			0	
Camerún	300	Incl. 150 de las existencias	100	300	
República Centroafricana	0			800	
Chad (N)	0			320	
Congo	1200		610	3784	Incl. 2.584 de las existencias
Côte d'Ivoire(N)	0			0	
Guinea Ecuatorial (N)	0			0	
Etiopía (N)	700	Incl. 436 de las existencias	640	530	
Gabón (N)	0			2600	
Ghana	0			0	
Guinea	0			0	
Kenya	2000			2000	Incl. 800 de las existencias
Liberia	0			0	
Malawi	20	Pulidos	20	370	Incl. 350 pulidos
Malí (N)	0			0	
Mauritania (N)	0			0	
Mozambique	120	Total existencias	96	200	
Níger	0			0	
Nigeria	0			0	
Rwanda	0			0	
Senegal	0			0	
Sierra Leona (N)	0			0	
Somalia	17002	Total exist.	16986	0	
Sudáfrica	12100	Incl. exist.	4195	14000	
Sudán	12971	Exist. actuales	12971	21500	Total exist.
República Unida de Tanzanía	16400		1867	18150	
Togo	0			0	
Uganda (N)	0			156	Exist. actuales
Zaire	10000		1425	15000	
Zambia	5800		2001	8500	
Zimbabwe	14000		507	9000	
	93133		41482	97730	

Los cupos para el siguiente año civil han de presentarse por escrito a la Secretaría antes del 1º de diciembre. Cuando la Secretaría no recibe el cupo correspondiente a un año de los países africanos que tienen una población de elefantes, se considera que dicho cupo es de cero. De los 33 países que poseen una población de elefante africano, 14 presentaron cupos por un total de 93.133 colmillos para 1986 y, a partir del 1º de junio de 1987, 17 países presentaron cupos por un total de 97.730 colmillos para este año. Han presentado cupos tres países que no son Parte en la Convención: Etiopía, para 1986 y 1987, y Uganda y Gabón, para 1987. Estos cupos fueron presentados junto con la declaración escrita de que dichos países se comprometían a conformarse a los procedimientos CITES de control del comercio del marfil.

5. En la Resolución Conf. 5.12 se ofrecía una única oportunidad para el registro de las existencias actuales de marfil que podrían destinarse al comercio internacional. Se debía informar a la Secretaría de dichas existencias antes del 1º de diciembre de 1986. Doce países registraron 118.884 colmillos y 5.003 trozos de marfil no trabajado:

País	No de colmillos		N. de trozos	Notas
Bélgica	2.456			
Burundi	17.848			
China	4.394			
Djibouti	1.997	(véase observación más adelante)		
República Federal de Alemania	1.450			
Hong Kong	28.477	(véase observación más adelante)		
Japón	2.872		3.017	Trozos de más de 40 cm
Macao	2.452			
Portugal	1.089			
Singapur	55.819		1.986	
España	22			
Reino Unido	8			
	118.884		5.003	

Sólo se registraron las existencias de los Estados que no son Parte en la CITES cuando la Secretaría recibió una declaración escrita de que el país se comprometía a ajustarse plenamente a la resolución Conf. 5.12 y a los Procedimientos relativos al control del comercio del marfil. Además, Singapur presentó su instrumento de adhesión a la CITES el 30 de noviembre de 1986. A pesar de que Djibouti registró puntualmente sus existencias y envió luego una declaración escrita de que se comprometía a cumplir lo estipulado, existe, al parecer, un problema interno en lo que respecta a la admisibilidad en el registro de una parte de las existencias, y el asunto aún sigue pendiente. Hong Kong presentó una cantidad suplementaria de 42.220 trozos de marfil no trabajado que no fue incluida por la Secretaría porque no se había podido determinar el número de trozos de que se trataba. No está autorizada la reexportación de las existencias de marfil no trabajado que están en poder países de Africa que no tienen una población de elefante africano y que no se registraron antes del 1º de diciembre de 1986, a menos que hayan sido importadas después del 1º de enero de 1986 conforme a los requisitos de CITES.

La Secretaría ha recibido varias observaciones, y tiene conocimiento de los artículos de prensa relativos al registro de existencias de marfil de procedencia ilegal, en los que se sugiere que ese marfil no debía de haber sido registrado o debía de haber sido confiscado a sus propietarios o haberse sometido al pago de una multa. Singapur y Burundi, países que registraron las existencias más elevadas, han sido señalados en particular, por cuanto todas las existencias de marfil registradas por Burundi y la mayor parte de las registradas por Singapur fueron sacadas ilegalmente de su país de origen. Cabe reconocer que en virtud de la legislación de Burundi o Singapur, al menos la que estaba en vigor antes de que estos países se comprometieran a ajustarse a la CITES, no era ilegal importar marfil sin los documentos relativos al país de origen, y por ende no había motivo para confiscarlo ni para tomar ninguna otra medida contra los propietarios/importadores. Los gobiernos de estos países sólo se han visto en la obligación de evitar la importación, el tránsito y la reexportación del marfil que no lleve los documentos pertinentes de CITES, o de confiscarlo, después de haber convenido en cumplir los procedimientos de la CITES. De conformidad con la resolución Conf. 5.12, la indicación del número del permiso/procedencia legal del país de origen no eran requisitos previos para el registro de las existencias y su venta posterior. Por consiguiente, la Secretaría se vió obligada a aceptar el registro de existencias y considera que el marfil puede reexportarse, si un Estado que no es Parte en la Convención ha accedido a cumplir los procedimientos de CITES relativos al control del comercio del marfil.

Otro factor suplementario, que quizá sea más importante, es la clarísima intención que tenían las partes al incluir la recomendación 1) en la resolución. Se sabía perfectamente que había esas existencias y que, por lo tanto, parte del marfil registrado sería de origen ilegal. Lo que desconocía la mayoría de los delegados y observadores era el volumen de algunas existencias. Las Partes decidieron finalmente registrar todas las existencias, para no perjudicar el nuevo sistema, al evitar que los países permitieran, de manera continua, la entrada en el mercado internacional de marfil adquirido posteriormente en forma ilegal, declarándolo como "existencias antiguas" o "pre-Convención".

6. En el manual sobre Procedimientos relativos al Control del comercio del marfil, elaborado y distribuido por la Secretaría, se recomienda una serie de procedimientos relativos a la expedición de permisos que permitirán a la Secretaría verificar la autenticidad de los permisos de exportación y reexportación en poder de los países importadores, y que dificultan el traslado de marfil no trabajado al amparo de documentos falsificados o alterados. Para que este aspecto de la coordinación funcione de manera efectiva, es esencial que los países exportadores y reexportadores envíen una notificación a la Secretaría, así como la copia del permiso, con inclusión de los datos del marcado de los colmillos, inmediatamente después de su expedición, y que los países importadores sólo permitan la entrada a los envíos después de que la Secretaría haya verificado la autenticidad del permiso correspondiente.

   Se informa por télex al país de importación de los detalles del permiso cuando la Secretaría ha recibido la copia del mismo y la ha inscrito en el registro, generalmente en el plazo de una día después de recibirla. Se remite entonces una copia a la Unidad de Vigilancia Continua del Comercio Internacional de Fauna y Flora Silvestres de la UICN, donde se registran en la computadora los detalles relativos al permiso, incluido el marcado de los colmillos.

Se ha concluido un contrato con la Unidad de Vigilancia Continua del Comercio Internacional de Fauna y Flora Silvestres del Centro de Vigilancia Continua de la UICN para el procesamiento de los datos relativos a los colmillos de marfil no trabajado y otros datos relacionados con los permisos, así como para informar acerca de las estadísticas del comercio de ese marfil y analizarlas. En el anexo 1 al presente documento figura el informe de 1986 presentado por la Unidad de la Secretaría, que fue elaborado por John R. Caldwell.

Dado que todos los colmillos se registran por computadora, la Unidad también puede ayudar a la Secretaría en lo que respecta a la verificación de los permisos. Se envía a la Unidad una copia de cada permiso relativo al marfil no trabajado, normalmente a los 2-3 días de haberse recibido, y los detalles sobre los colmillos se registran en la computadora dentro de los 14 a 28 días siguientes a la expedición del permiso. Ello generalmente permitirá que la Secretaría advierta al país importador de un problema potencial relacionado con el permiso antes de la llegada del envío. En la mayoría de los países, es poco lo que se puede hacer desde el punto de vista jurídico contra el importador, una vez que se ha permitido la entrada al envío, salvo si se puede comprobar la existencia de complicidad.

El caso de una falsificación intencionada de la cantidad de colmillos incluida en dos series de permisos para los envíos efectuados por un exportador de Hong Kong a un importador de Macao, que se menciona en el informe de la Unidad, constituye un buen ejemplo de cómo este sistema puede evitar el comercio de marfil obtenido ilegalmente, mediante la utilización de documentos de CITES. Ilustra asimismo la importancia que reviste la presentación puntual de las copias de los permisos a la Secretaría. Si hong Kong no hubiera remitido sin demora los permisos, se habría permitido la entrada a los envíos, por cuanto la Secretaría había notificado a Macao su validez por télex, en cuanto se recibieron copias de los permisos.

Se han registrado demoras en la validación de los permisos por la Secretaría solamente en una pequeña parte del total de los permisos recibidos, y ello debido a que los países exportadores/reexportadores no habían enviado prontamente copia de los mismos a la Secretaría, por cuanto había una alteración aparente de los documentos o porque faltaba información esencial, como el lugar donde se encontraba el consignatario o los datos relativos a los colmillos. Algunos comerciantes han presentado estos casos como si fueran la regla, y han descrito los nuevos controles como un procedimiento gravoso, que ocasiona atrasos irrazonables (particularmente cuando el país importador tiene que cumplir un requisito en materia de permisos de importación del Apéndice II), y han instado a las Autoridades Administrativas y a la Secretaría a que hagan menos rigurosos los procedimientos de control. Se han determinado las circunstancias causantes de las demoras y se han corregido las deficiencias en ese aspecto, a fin de que no se repitan esos problemas con dichos países.

8. Ya es evidente que no se ha enviado a la Secretaría copia de muchos documentos relativos a la exportación de marfil no trabajado (principalmente porque algunos países exportadores creían equivocadamente que los procedimientos de control del comercio del marfil no eran aplicables también a los trofeos personales/turísticos y de caza, y que los países importadores aceptaban envíos sin ponerse en contacto con la Secretaría para verificar su autenticidad. Muchos de los documentos no contenían la información requerida, como la dirección completa del

destinatario, la cantidad o el peso de los comillos y las marcas de estos últimos. Dado que muchos países exportadores/reexportadores no presentaron un resumen de las exportaciones de marfil no trabajado efectuadas en 1986, como pedía la Secretaría, no se tendrá una imagen completa del problema hasta que se hayan recibido los Informes Anuales, a finales de 1987.

A continuación figura un resumen (1986 y el primer semestre de 1987) de los países que han expedido permisos de exportación/certificados de reexportación para el marfil no trabajado sin notificarlo a la Secretaría y sin enviar copia del documento pertinente, en ningún momento o antes de transcurridos por lo menos seis meses desde la expedición de dicho documento, y de los países que, al parecer, han permitido la importación sin la validación del documento por la Secretaría:

País de destino	País de exportación/reexportación(1986 y primer semestre de 1987)															
	AU	BE	BW	CF	CG	CM	ET	FR	GB	MW	MY	MZ	TZ	ZM	ZR	ZW
AT													2			6
AU											1					3
AR													2			1
BE													1			
CA					1	3							1			1
CH						1										
CY										1						
DD												1				
DE			10			6							3			11
DK													1			
EG										1						
ES						1							4			7
FR					1	28	1*			1			14			1
GB			1							8			1			1
GR										1					2*	3
HK		1	2						1					3	1	2
IN									5					3		
IL										1						
IT					1	1				1			4			4
JP	1			2*				1				1	9			
LK													1			
MX													4			
NG						1										
NL										1						1
NO													1			
OM																1
SE												1				1
TW			1							13						1
US			1			2			1	10			38	1		60
ZA										8						16
ZR										1						

*Entrada aparentemente negada

Esta información se ha incluido con el objeto de advertir a los Estados de la existencia de un problema potencial en lo que respecta a sus procedimientos de expedición de permisos o admisión de las importaciones, y no de avergonzarlos. Debe examinarse en el entendimiento de que la lista no es completa y de que es posible que, de hecho, no se hayan efectuado algunos de los envíos. Desde que se puso en vigor el sistema, se han descubierto documentos fraudulentos, carentes de validez o alterados ilegalmente, relativos al marfil no trabajado de Burundi, República Centroafricana, Congo, Hong Kong, Macao, Somalia, República Unida de Tanzanía y Zaire.

9. Según los permisos e informes recibidos hasta la fecha, en 1986 se comercializaron legalmente 85.205 colmillos, de los cuales 41.482 colmillos (de los 93.133 colmillos correspondientes al total de los cupos presentados), es decir, 188,5 toneladas, fueron exportados por los países a los que se ha asignado un cupo. Además de esta cantidad (pero dentro del total), los 17.848 colmillos (89,5 toneladas) registrados por Burundi fueron reexportados a Bélgica a finales de 1986. Se estima, con moderación, que ello representa menos de la mitad del marfil no trabajado que salió de los países productores de Africa en 1986. Salieron por lo menos 300 toneladas más ilegalmente, en gran parte a través de Burundi y los Emiratos Arabes Unidos, a Singapur y los mercados asiáticos. Al analizar las existencias registradas en Burundi se hicieron las siguientes constataciones en lo que respecta al origen: el 40% provenía de Zaire, el 30% de la República Unida de Tanzanía, el 20% de Zambia, y el 10 % restante de Sudán, Kenya, Uganda, Mozambique, Malawi, Zimbabwe y Botswana.

   La Secretaría tiene conocimiento de los envíos ilegales que han sido confiscados en 1986 y 1987 en Hong kong, China, Japón, Bélgica, República Unida de Tanzanía, Kenya, Zambia y Chad. Los casos sobre los que se dispone de información concreta se examinan en el documento Doc. 6.19 "Examen de supuestas infracciones".

10. Con la aplicación del sistema de cupos es más difícil sacar marfil ilegalmente del continente africano. Ha contribuido en gran medida a ello la promulgación en 1986 por Macao de la legislación de CITES y la adhesión de Singapur a la Convención, países que eran importantes depósitos de Asia para el marfil ilegal. Burundi había sido durante varios años el principal depósito del continente africano, y el compromiso del gobierno de ese país de establecer controles para el marfil se consideró como un logro notable. Sin embargo, hay indicios de que Burundi quizá no esté cumpliendo su compromiso: a finales de 1986, se reexportó de Burundi a Singapur, a través de los Emiratos Arabes Unidos, un envío de 26 toneladas sin los documentos de CITES; al parecer, se ha pedido a una empresa británica de flete aéreo que organice la importación de una tonelada de marfil que, según se alega, fue confiscada en los últimos diez años - la carta parece llevar el sello y la firma del Director de Aduanas de Burundi; y se informa continuamente de la entrada ilegal de marfil a Burundi, de los países vecinos. La Secretaría ha tratado en vano de comunicarse con el gobierno en relación con estas cuestiones, y se opina que las Partes deberían exhortar directamente a Burundi a que dé una explicación al respecto y cumpla su compromiso de respetar los procedimientos de CITES relativos al control del comercio del marfil.

    Los Emiratos Arabes Unidos siguen siendo uno de los depósitos más importantes de marfil ilegal. Debido a que continúa el comercio ilegal de especies de la CITES hacia o a través de ese país, y a que hay una falta de voluntad para mejorar la situación, pese a los reiterados intentos de

la Secretaría por establecer una comunicación, el 28 de noviembre de 1985, se instó a las Partes, en la Notificación Nº 366, a que prohibieran el comercio de especies de la CITES con los Emiratos Arabes Unidos. Este país ha presentado un instrumento de retiro de la Convención, con efecto a partir del 27 de enero de 1988 (véase el documento Doc. 6.20).

La Secretaría ha observado que, debido a que se han hecho más rigurosos los procedimientos de control y que los países que antes servían de depósito para el marfil no trabajado de elefante han impuesto controles al comercio, se están realizando esfuerzos cada vez mayores por establecer operaciones de manufactura del marfil en lugares como Africa Occidental, los Emiratos Arabes Unidos y Taiwán. Dado que los controles de CITES son menos rigurosos para el marfil trabajado que para el marfil no trabajado, se pretende blanquear los colmillos ilegales a través de estas operaciones, a fin de facilitar su movimiento en el comercio internacional.

A fin de reducir al mínimo la posibilidad de utilización de este recurso, es sumamente importante que se exijan los documentos de CITES para la exportación y reexportación de todos los envíos comerciales de marfil trabajado. Los países que, como Hong Kong, consideren que el marfil trabajado "no es fácilmente identificable", en el sentido del artículo I de la Convención, y que por lo tanto no requieren documentos de CITES para su importación y exportación, proporcionan un incentivo casi irresistible para que el comercio ilegal lo utilice como medio para eludir los controles de CITES (véase el documento Doc. 6.23, "Comercio del marfil trabajado del elefante de Africa").

11. En la resolución Conf. 5.12 se reconoce que el establecimiento de un cupo anual de exportación para el marfil debería considerarse como parte del programa de manejo de un país de una población de elefante. Sin embargo, cabe reconocer también que varios países no disponen aún de programas de manejo y que los cupos establecidos durante los primeros años no serán muy precisos ni realistas por varios motivos, que incluyen la falta de datos actualizados sobre las poblaciones y el nivel de captura ilegal y la existencia de una infraestructura inadecuada para establecer o llevar a la práctica programas de manejo de la fauna y la flora silvestres, programas de utilización y actividades eficaces de lucha contra la caza furtiva.

La adopción del sistema de cupos sólo constituyó un punto de partida, un marco que permite a las Partes ayudar a los países productores de Africa proteger y manejar sus poblaciones de elefante mediante la cooperación establecida en relación con una serie de procedimientos de control del comercio que van algo más allá de las disposiciones aplicables a una especie del Apéndice II de la CITES. En el caso de los países importadores, ello supone un mayor grado de cautela al aceptar los documentos relativos a envíos de marfil. En el caso de los países productores, supone establecer cupos realistas, respetar los procedimientos de control de la manera más cuidadosa posible, y reducir las posibilidades de acción de los cazadores furtivos.

Se pidió al Grupo de Especialistas de Elefante y Rinoceronte Africanos de la Comisión de Supervivencia de Especies de la UICN, en nombre de los países africanos que tienen una población de elefante, y a fin de cumplir el mandato de la Secretaría de brindar asesoramiento sobre la situación en materia de conservación del elefante de Africa, que analizara la relación existente entre los cupos de exportación de marfil para 1986 y 1987 y el volumen del comercio efectuado realmente, con respecto a las poblaciones actuales del elefante y otros factores conexos. Dado que cada cupo

representa una decisión nacional de carácter individual y un conjunto único de circunstancias, es evidente que el análisis debe llevarse a cabo por países. Esta cuestión figuraba en el orden del día de la reunión del Grupo de Especialistas, celebrada en Nyeri, Kenya, en mayo de 1987, y se espera que se haya concluido la elaboración de un documento sobre el particular a tiempo para la reunión de Ottawa, y que se incluya como anexo 2 del presente documento. Se espera asimismo que esta información sea de utilidad para que los países a los que se ha asignado un cupo puedan evaluar los niveles de sus cupos y establecer cupos para el próximo año.

La Secretaría espera que este análisis se lleve a cabo de manera continua en caso de que el Grupo de Especialistas esté dispuesto a ello y de que los países productores consideren que la información es útil. Se espera asimismo poder facilitar a los países que son Parte en la CITES y a los que no lo son, la asistencia técnica que soliciten para la determinación de los cupos. A pesar de que la Secretaría indicó que trataría de tomar las disposiciones necesarias para ayudar a los países a preparar la presentación de sus cupos para 1987 (Notificación sobre el marfil Nº 12 de fecha 19 de noviembre de 1986), ningún país pidió asistencia.

CONCLUSIONES Y RECOMENDACIONES

a. La eficacia del sistema depende íntegramente de cuan realistas son los Estados al establecer los cupos, así como del grado de cooperación y cautela que pongan de manifiesto todos los países exportadores e importadores de marfil en el control del comercio del marfil trabajado y no trabajado. Algunos países aún no aplican los procedimientos de control recomendados, es decir, que los países exportadores e importadores no envían a la Secretaría copia de los documentos expedidos, exportan a países que no son Parte en la Convención y que no colaboran con ella, y no facilitan la información requerida, como las marcas de los colmillos; los países importadores permiten la entrada de envíos sin que la Secretaría haya verificado su autenticidad y con documentos inadecuados, y permiten asimismo la entrada de colmillos que no están marcados. La eficacia del sistema será menor si los países siguen haciendo caso omiso de los procedimientos de control recomendados.

b. Para reducir al mínimo la posibilidad de que los comerciantes ilegales eludan los controles, los Estados deberían exigir la presentación de documentos de CITES para todos los envíos de marfil trabajado (véase el documento Doc. 6.23), y el marfil no trabajado que sea objeto de comercio internacional debe estar marcado de conformidad con los procedimientos recomendados. La Secretaría opina que las recomendaciones vigentes para el marcado del marfil, que figuran en la Resolución Conf. 3.12 no son realistas, y ha presentado una propuesta de resolución sobre el particular a la consideración de las Partes (véase el documento Doc. 6.22).

c. Se debería pedir al Grupo de Especialistas (AERSG) que ayuden a la CITES mediante el análisis continuo de los cupos de exportación del marfil, a fin de que los países a los que se les han asignado cupos puedan disponer de los resultados de dicho análisis y utilizarlos.

Se debería prestar asistencia técnica para el establecimiento de cupos anuales y de procedimientos adecuados de CITES relativos al control del comercio del marfil a todo país del área de distribución que la solicite. La Secretaría sugiere que, en el caso de que no se pueda determinar con precisión el país de origen, y de que la legislación nacional lo permita, se asigne parte de los ingresos que obtengan los países importadores por

concepto del marfil ilegal confiscado a esa asistencia técnica, a fin de obtener los datos biológicos necesarios para los programas de manejo y para el mejoramiento de la aplicación de los procedimientos de control.

THE EFFECT OF RECENT LEGISLATIVE CHANGES ON THE PATTERN OF THE WORLD'S TRADE IN RAW IVORY

A report to the CITES Secretariat by

J.R. Caldwell

Wildlife Trade Monitoring Unit
IUCN Conservation Monitoring Centre
219c Huntingdon Road
Cambridge CB3 0DL
U.K.

Copyright c IUCN Conservation Monitoring Centre 1987.

INTRODUCTION

This report has been written under the consultancy contract of the CITES Secretariat with the IUCN Conservation Monitoring Centre (CMC). The aim of the report is to outline changes in the pattern of the world's trade in raw ivory during 1985 and 1986, to show how the new ivory quota system is operating from the standpoint of trade statistics and to detail the part that CMC's Wildlife Trade Monitoring Unit (WTMU) plays in that system. Although Belgium, UK and France are important in the world's ivory trade, it was decided that this report should concentrate on Japan and Hong Kong as most of the ivory in international trade goes to or through these markets and they are, therefore, the best indicators of changes in trade patterns. In addition, the report makes some comment on the average weight of tusks in trade and the degree to which this value can be used for determining the effect the trade has on natural elephant populations.

SOURCES OF INFORMATION

The main sources of information for this report are the CITES annual reports for Hong Kong for the years 1979 - 1986, which apart from 1979 list both the number of tusks and the weight of ivory in each shipment, and Japanese Customs statistics for the same period, which only give the total weight of ivory but include waste and powder. For 1986 additional information was available to WTMU in the form of the export permits issued for exports of ivory under the quota system, which were provided by the CITES Secretariat. Although not all of the ivory exporting countries fully understood the new ivory control procedures, and failed to send some, or all, of the copies of their export permits to the CITES Secretariat, it is believed that most of the major commercial shipments were traced.

In some earlier reports on the ivory trade (WTMU, 1983; Caldwell, 1984) the average weight of tusks in trade was estimated for Japan on the basis of re-exports to Japan from Hong Kong. In 1984 however, Japan for the first time provided details of both numbers of tusks and their weight, in a draft report to CITES, which allowed a much more accurate calculation of average tusk weight to be made. However for 1985 the Japanese annual report to CITES recorded tusk imports either by weight or by number but not by both. Although some of Japan's imports can be traced in annual reports of other CITES Parties, insufficient data are available to calculate accurately the average weight of tusks being exported from Africa. As the information on average tusk weight for 1985 is so poor, and in view of the reliance of both Japan and Hong Kong on each other and on other non-producer countries for their sources of ivory in 1985, and with so much more detailed information available on the individual tusks traded in 1986, it was not considered worthwhile to estimate a global average tusk weight for 1985.

Information on seizures of ivory, on available stocks of ivory and on export quotas for 1986 and 1987 was taken from numbered Ivory Notifications issued by the CITES Secretariat. Calculation of the number of tusks in each 0.5 kg weight class was done by the WANG VS computer.

CHANGES IN THE TRADE PATTERN DURING 1985 - 86

An earlier report by WTMU (Caldwell and Barzdo, 1985) outlined a period of dramatic change in the pattern of the world's ivory trade that took place throughout 1983 and 1984. During that period, the relative importance of Hong Kong as the centre of the ivory trade was being overturned in favour of Japan. The root cause of this imbalance was that, while Hong Kong's legislation effectively implemented CITES for ivory, Japan's did not. Gradually the number

of legitimate suppliers of ivory in Africa became reduced for Hong Kong, which subsequently became more and more reliant upon Japan as a source of supply. During 1984, Hong Kong's imports of raw tusks fell to 260 tonnes (t) compared to 565 t the year before; 66% of these were imported via Japan as is shown in Figure 1a. In addition, Hong Kong's carving industry was becoming increasingly reliant upon cut pieces and ivory scrap (125 t being imported in 1984), again mainly imported from Japan. This is shown in Figure 1b. The two incidents that had brought about this change in the trade pattern were Sudan's ban on exports of raw ivory, introduced at the end of 1983, and Belgium's accession to CITES and subsequent tightening of controls through Europe in January 1984. The combined effect of these two events was to force much of the trade to centre upon Burundi as the main outlet of ivory from Africa to Japan, with the United Arab Emirates (UAE), Macau and Singapore becoming important as staging posts.

In 1985 two further events took place which were to have very significant effects on the world's ivory trade. At the fifth meeting of the Conference of the Parties to CITES, held in Buenos Aires, Argentina, in April, the CITES Secretariat was given the mandate to form a special ivory unit. At the same time the major ivory producer and consumer nations agreed to operate a quota system in which the countries with elephant populations would set export quotas based on sound management principles and the ivory importers would only accept ivory coming from countries that had agreed to the quota system. The special ivory unit of the Secretariat was to co-ordinate trade between exporting/re-exporting and importing countries and to monitor the trade. Earlier in 1985 a consultant had been employed by the CITES Secretariat and funded by the EEC to investigate the different ways a quota system could be operated and how reasonable export quotas could be estimated from known elephant populations to allow sufficient ivory for both international trade and any internal carving industries that might exist (see Martin, 1985). At that time fears were expressed by some traders that the quotas would be set at such a low level that there would be insufficient raw material for them to continue in business.

The second significant event for the ivory trade in 1985 was the introduction of new legislation in Japan that, for the first time, required the presentation of a valid export licence from the country of origin before import would be allowed. The effect of the legislation, passed in April 1985, was not immediately apparent and, by the end of June, there was little sign that anything had changed. Milliken (1985) pointed out that although a few token shipments had been stopped, ivory was still flooding into Japan with unrealistic origins being specified such as Uganda and Rwanda, which have very few elephants remaining.

The effect of the new legislation became obvious in the second half of 1985. Up to the end of June, Japan had imported 235 t of raw ivory and appeared to be well set to reach an end-of-year total similar to that achieved in the two previous years, 473 t and 474 t in 1983 and 1984 respectively. In fact, only another 70 t were imported in the second half of the year and several shipments were refused entry.

Hong Kong imported only 41 t of ivory directly from Africa in 1985, the tusks coming from South Africa, Sudan (despite the ban a few exports were allowed to meet previous commitments), Tanzania and Zimbabwe only. The remaining 71% of Hong Kong's imports arrived via Belgium, China, France, Japan, Switzerland and the USA. Japan was again the major supplier, accounting for 57% of the raw tusks and most of the 94 t of ivory scrap and cut pieces imported.

The main effect, therefore, of the Japanese legislation was to create a block at the importing end of the trade route. Fears that the soon-to-be-introduced quota system would severely restrict exports from Africa may have encouraged some traders to move as much ivory as they could out of the continent before the system began operating in January 1986. The result was that large stockpiles began to build up throughout 1985, and to a certain extent in 1986, at the various staging posts mentioned earlier, viz UAE, Burundi, Macau and Singapore.

Under the quota system, producer countries have to inform the CITES Secretariat of their annual quota, preferably by the end of the year previous to the one to which it applies. Countries that have not submitted a quota are deemed to have a zero quota until a quota is notified, and may not export raw ivory. All tusks exported, including personal hunting trophies, are covered by the quota system and each should carry a unique mark composed of, as a minimum, the two-letter ISO code of the country of origin, the number of the tusk, the year of marking and the tusk weight in kilogrammes.

Table 1 shows the export quotas for 1986 and the number of tusks actually exported.

Table 1.

Ivory exported from Africa under the quota system - 1986

Country	Quota	No. tusks exported	Weight (kg)	mean wt. /tusk
Botswana	520	14 (1)	-	-
Cameroon	300	100 (1)	-	-
C.A.R.	0	8 (2)	-	-
Congo	1200	610	8186.5	13.4
Ethiopia	700	640	4549.9	7.1
Ghana	0	0	-	-
Kenya	2000	0	-	-
Malawi	20	20 (1)	-	-
Mauritania	0	0	-	-
Mozambique	120	96	1548.8	16.1
Niger	0	0	-	-
Somalia	17,002	16,986	51,184.0	3.0
South Africa	12,100	4195 (3)	31,828.2	7.6
Sudan	12,971	12,971	59,525.6	4.6
Tanzania	16,400	1867 (4)	13,172.8	7.1
Zaire	10,000	1425	5538.5	3.9
Zambia	5800	2001	7739.3	4.0
Zimbabwe	14,000	507 (5)	5598.3	12.1
Total	93,133	41,440	189,108.0	4.58
Burundi (6)	18,148	17,841	89,464.4	5.0
Total	108,441	59,461	278,572.4	4.71

Notes

(1) some permits issued, not received by WTMU.

(2) 2 permits issued, refused by Management Authority of France.

(3) includes a few re-exports origin Botswana, Namibia and Zimbabwe

(4) includes 10 for which weights were not listed on the export permits

(5) includes 43 for which weights were not listed on the export permits

(6) Burundi became eligible to re-export stockpiled ivory registered with the CITES Secretariat, on a once only basis, following Ivory Notification No. 11 of 14 October 1986.

The most obvious trend in the pattern of trade during 1986 was the continued strong decline in Japan's gross imports. During that year only 79 t were imported (see Fig. 2a), the lowest amount since 1965, and of that amount 27 t was imported via Hong Kong. Hong Kong's gross imports of raw tusks (Fig. 2b) remained steady at the 1985 level of 142 t but, unlike the previous few years, virtually none was imported via Japan. This is shown in Fig. 1a. The amount of cut pieces and scrap imported by Hong Kong was also lower (56 t) as is shown in Fig. 1b. In order to calculate the net quantity imported by Japan and Hong Kong together, their gross imports have been summed and the trade between the two countries discounted. This indicates that the Japanese and Hong Kong markets between them imported about 265 t in 1985 and only 195 t in 1986, far less than in previous years (see Fig. 2c). The creation of large stockpiles outside these countries however, meant that the part played by the end-markets in the Far East was far less important than in previous years. In order for the carving industries of Japan and Hong Kong to have continued without a disastrous rise in unemployment it must be assumed that the dealers there already held considerable stocks of raw ivory.

One of the first effects of the quota system was to reinstate Sudan as a major exporter. The quota for that country, of 12,971 tusks, was fulfilled in 32 shipments, all but two of which went to Hong Kong. The average weight of the tusks was only 4.6 kg and it is perhaps significant that 1145 or almost 9% of these tusks weighed 0.5 kg or less. The weight distribution of the tusks, and the fact that Sudan requested a quota of 21,500 tusks for 1987 to cover existing stocks, suggests that the 1986 exports came from a much larger stock than was actually exported. Indeed, the Management Authority in Sudan has recently informed the CITES Secretariat that all the stocks exported in 1986 and included in the 1987 quota was stock in hand in 1985; it is assumed that no further stocks are held in the country (but see cautionary note in the discussion of average tusk weights).

The only producer country to export more ivory than Sudan in 1986 was Somalia. Somalia, which only became a Party to CITES in March that year, had a stock of an estimated 17,002 tusks owned by the Somali Government. This stock weighed about 51 t and was stored in the police compound at Mogadishu. After inspection by two officers of the CITES Secretariat, this ivory, with an average tusk weight of only 3 kg, was released for sale and was sold in its entirety to a trader in Hong Kong. As reported in the Traffic Bulletin, this sale cleared up one of the problems in establishing the ivory control procedures, as it had been feared that the Somali stock might be used to cover a laundering operation for illegally obtained tusks (Caldwell, 1986).

Although Japanese Customs statistics recorded ivory from the Central African Republic as having been imported in early 1986 this was not in contravention of the zero quota. This ivory had in fact been sold and exported, much of it through Belgium, in late 1985.

Of the other African countries with quotas in 1986, none appears, on the basis of permits received by WTMU, to have achieved its set quota. Ethiopia filled 91% of its quota of 700 tusks with one shipment to Hong Kong of 640 tusks averaging 7.1 kg, and Mozambique filled 80% of its quota of 120 tusks with one shipment of 96 tusks, averaging 16.1 kg, to Japan. Congo only used 51% of its quota, Zambia apparently reached 38% and South Africa only 35% (for average tusk weights see Table 1). Kenya had a quota of 2000 tusks but apparently exported none.

Three of the largest quotas were those for Tanzania, Zimbabwe and Zaire, being 16,400, 14,000 and 10,000 tusks respectively. However exports from those countries totalled less than 4000 tusks, or less than 10% of the given quota. In the cases of Tanzania and Zaire, at least the equivalent of their quotas was probably exported illegally via Burundi (Parker, pers. comm.). Another of the reasons behind the unfulfilled quotas may have been the problem of the large amount of stockpiled ivory and a natural unwillingness amongst some of the traders to buy yet more ivory when they had large amounts of capital tied up in those stockpiles. Table 2, which lists the stocks of ivory registered with the CITES ivory unit before the 1 December 1986 deadline, shows how much ivory was tied up in this way. From the stocks in Burundi, Macau and Singapore plus an unknown quantity in UAE it would appear that at least 400 - 500 t had been accumulated in stockpiles over the preceding 18 months. This figure probably represents frozen assets worth something in excess of US$ 50 million, assuming a value for raw ivory of US$ 100 per kg.

Table 2.

Stocks of raw ivory registered with the CITES Secretariat

Country	Number of tusks	Weight (kg)
Belgium	2,456	16,150
Burundi	18,148	89,464
China	4,394	19,027
F.R. Germany	1,450	10,886
Hong Kong	28,477	178,510
Japan	2,872	32,579
Macau	2,452	22,293
Portugal	1,089	14,017
Singapore	55,819	270,474
Spain	22	161
United Kingdom	8	139
Total	99,039	653,700

NB. Almost 47 t of cut pieces are held in Singapore and Macau plus an unknown amount in Hong Kong. Djibouti also registered ivory stocks before 1 December 1986 but has not yet made a formal commitment to comply with the Ivory Trade Control Procedures.

The problem of ivory stockpiled in non-producer countries had been recognised by the fifth meeting of the Conference of the Parties to CITES and there was a clause built into Resolution Conf. 5.12, which set up the quota system, to allow these stocks to legitimately enter trade without compounding the problem. The clause only allowed stocks registered with the CITES Secretariat by 1 December 1986 to be traded. Thus currently held stocks could be run down without the danger that stocks of ivory obtained in contravention of the quota system could be built up again, either in those countries having previously registered stocks, or in others.

Thus, throughout much of 1986, there was a lot of understandable anxiety amongst traders with capital tied up in stockpiles. At the same time it was important for the CITES Secretariat that these stockpiles should be used, as the presence of such a large reservoir of ivory outside the quota system would have rendered that system very difficult to operate or to police in any realistic way. Governments of countries holding such stockpiles were thus under a certain amount of pressure from two directions, to persuade them to agree to comply with the ivory control procedures and to register stocks before the 1 December deadline.

It appears that before the final deadline for registration arrived there was considerable movement between stockpiles as traders tried to find the most economical way to get their ivory back into trade. For example, Macau only registered stocks of 22 t whereas several times that amount had been seen there earlier in 1986 by an officer of the CITES Secretariat. It was suggested by the Macau Authorities that much of this was smuggled out, probably to Singapore, or entered the domestic carving industry. China imported some 19 t in April and May which had been illegally imported from Macau and Singapore; this was subsequently confiscated. It is also believed that at least 100 t of Singapore's declared stock had recently been imported from Somalia, Burundi and Dubai.

Burundi was the first of the major non-producer countries to register its stockpiled ivory, and virtually all of it was shipped to Belgium in late 1986. Much of it was subsequently re-exported to Hong Kong, arriving in early 1987, and some to China and Japan.

Until recently it was fairly easy to import ivory to Japan on the basis of a certificate of origin, the validity of which was very rarely checked. For this reason it is thought that large-scale smuggling of ivory was unnecessary. It is now suspected that the new legislation, that requires the prior presentation of a valid export permit from the country of origin, has led to increased smuggling of ivory.

In January 1986 Belgian Customs officers seized 10 t of raw ivory at Antwerp harbour, the tusks being in two containers said to contain "Bee-wax", and in another incident 1.5 t was discovered in a shipment of malachite in Lisbon, Portugal. In June 1986, Zambian authorities seized 564 tusks weighing about 6 t which were found in a concealed compartment of a truck going to Burundi. Other seizures are known to have occurred in both Tanzania and Kenya.

WTMU's ROLE IN THE IVORY CONTROL SYSTEM

At the beginning of 1986, WTMU was contracted by the CITES Secretariat to set up and maintain a computerised database on the Wang VS 65 computer at Kew, London, that could account for all raw ivory in trade. This is made possible by each tusk having a unique number composed of country code, registration number, year and weight in kilogrammes.

Permits for export of raw ivory, accompanied by the relevant tusk data sheets bearing all the unique numbers of the tusks in the shipment, are normally sent to the CITES ivory control unit where the initial checking procedures are carried out before the ivory is actually shipped. Full details are immediately forwarded by post to WTMU for entry into the computer.

The details of each ivory transaction are entered into the computer, via a dedicated telephone link, at IUCN's Conservation Monitoring Centre in Cambridge, of which WTMU is a part. The data are entered on a series of linked input screens, the first of which takes all the details appertaining to the export permit and the transaction itself. These can include the following: exporting country, export permit number, the date on which the permit was issued, the year for which the tusks form part of the quota, the actual date of export, the importing country, the date of import and import permit number, the number and weight of whole tusks, the number and weight of cut pieces which have been marked in accordance with the ivory control procedures, the number and weight of unmarked cut pieces or scrap, the total weight of the shipment and whether it was the exporter, the importer, or both who reported the transaction. It is also possible to indicate, in cases where information has been reported by both exporter and importer, which information source is considered to be the more accurate.

The second input screen allows the input of all the available data about the tusks, normally typed in directly from the tusk data sheets accompanying the export permit. The following information, if it is available, can be entered on this screen: the two-letter ISO code of the country that marked the tusk, a district code if one is present (up to six characters are allowed for this), the number marked on the tusk, the year of marking, the weight marked on the tusk in kilogrammes, the country of origin of the tusk if it is different to the marking country, the length of the tusk in centimetres, the state of the specimen (i.e. if it is a whole tusk or a cut piece), the circumference of the tusk at the lip mark, the sex of the elephant, the age of the elephant and the source of the tusk, i.e. whether it has come from an animal killed for a hunting trophy, from a culling operation, from an elephant control operation, poached and seized ivory, etc. For the purposes of the CITES ivory control unit, the first five of these tusk criteria make up a tusk's unique number, however the computer does not recognise weight as part of that number, thus allowing for the small changes in weight that may occur during shipment.

In order to speed-up the input of data, the computer can automatically generate the country code, the district code and the year, etc. if these details are constant throughout a shipment or part of a shipment, and can also generate the actual tusk numbers if these are sequential. In this instance the only data entered manually are the tusk weights. The computer is also capable of copying details of individual tusks, part shipments or even entire shipments from one permit to another to speed-up input in the case of re-exports.

When all details of an ivory shipment have been entered into the computer, a printout is produced showing all the details of the permit and the tusks. This allows the typist to check the accuracy of the input. To allow for easier cross-checking the computer also calculates and outputs the total number of tusks entered and the total weight of the shipment. In addition, the computer checks each of the tusks in the shipment against all the tusks already in the database and reports any inconsistencies such as tusks being exported from a country other than the one that last imported them.

All instances of irregularities are immediately telephoned to the CITES ivory control unit in order that investigations can be instigated as speedily as possible. Tusk information is entered into the computer as soon as it is received by WTMU; in most cases therefore, full details are in the computer within 14 to 28 days of the export permit being issued which means that, under normal circumstances, an importing country can be warned of a potential problem before the ivory is actually imported.

During 1986, many cases of duplicate tusk numbers have arisen, and all have been communicated to the CITES Secretariat. However, duplicate tusk numbers do not necessarily indicate deliberate falsification, although this is the first thing to be investigated, and five different reasons for this phenomenon have become clear throughout 1986. Many problems have been caused by marks being written in felt pen which subsequently prove difficult to discern. In some cases accidental misreading or typographical errors have been the cause. A technical error in South Africa caused several hundred tusks to be given the same number by authorities in both Transvaal and the Orange Free State. In Sudan the first trader to begin marking and exporting tusks under quota misunderstood the system and began marking the tusks on each of his five export permits with number 1. This problem was eventually solved when the trader in Sudan payed for the tusks to be remarked in Hong Kong with a suffix A, B, C, D, or E before they were re-exported.

The fifth reason for duplicate numbers is deliberate falsification. Towards the end of 1986, a Hong Kong trader exported some ivory to Macau and subsequently applied for several permits to export more shipments, also to Macau. When the computer showed that many of the tusk numbers had been used on the earlier permit the CITES Secretariat was immediately informed. Subsequent action by the Hong Kong authorities was to cancel the new permits and investigations were instigated by the authorities in both Hong Kong and Macau.

Throughout 1986 WTMU computerised details of approximately 700 ivory export permits, totalling 91,000 tusks, plus a stock of 52,000 tusks registered by Singapore. WTMU also aided the CITES Secretariat in establishing a standardised permit checking system in Lausanne. In addition to the output of tusk details from the computer, WTMU now has the facility to list the permits issued for all exporting countries, either singly or collectively, and conversely all imports for all importing countries. It is hoped that, in the future, WTMU and IUCN/SSC's African Elephant and Rhino Specialist Group will liaise closely in order that more analytical work can be done on the effect of trade on wild populations. To this end, WTMU has recently developed a programme to allow the computer to sort details of all the tusks exported by any country into specific weight classes in order to construct histograms showing the weight distribution of the tusks in any individual country's raw ivory exports.

IMPLICATIONS OF AVERAGE TUSK WEIGHT

In many recent studies of the world's ivory trade the average weight of tusks has been used as some kind of indicator of the effect of the trade upon wild populations. Pilgram and Western (1984) have also used this value in a mathematical model predicting the effect of different offtake regimes from elephant populations. There appears to have been a decrease in the average weight of tusks traded by Japan and Hong Kong between the late 1970s and the mid-1980s which has suggested that, overall, more elephants are being killed each year to provide roughly the same amount of ivory to the trade. Thus population structures in the wild were being altered and the average age of animals killed for the trade was falling. Average tusk weights have been estimated and calculated using various sources of information and by various

means in recent years but the general consensus of opinion is that the average weight has been declining. This can probably be explained by a general change in hunting technique, from selective to non-selective hunting; i.e. instead of hunting animals with heavy tusks, whole families are killed and all available ivory is taken. This fits in well with known facts concerning the increase in organised poaching in the early 1980s and tusk weight distribution might therefore be expected to be comparable with that obtained during the culling operations in Zimbabwe in recent years.

For the weight of tusks in trade to act as a measure of the wild population, two assumptions have to be made: firstly that tusks entering trade are in some way representative of the populations they were taken from, and secondly that the distribution of tusk weights around the mean weight is regular, or at least predictable.

In fact, tusks in international trade are unlikely to provide an accurate representation of the structure of the population from which they have been taken for many reasons. During the 1970s a substantial amount of the ivory in trade was either found or deliberately hunted and in the case of hunted ivory it is likely that there was a bias towards bulls carrying heavy ivory. Data from that period are very incomplete and difficult to analyse and Parker's outstanding account of the ivory trade (1979) is the best available information from this period.

At the present time, and in the past few years, ivory entering the international market is and has been from many and varied sources and has been obtained in several ways. Countries that support an internal ivory carving industry, such as South Africa, Zimbabwe and Zambia are more likely to export large tusks, that have a high value on the international market, than the smaller, substandard tusks that can be used by the domestic carving industry. Thus in order to estimate the effect of the trade on South Africa's elephant population one must take full account of the internal trade, for which data are very difficult to obtain, or the results would be totally spurious.

Another problem is determining exactly from which population a tusk has come. During the early 1980s, most of the tusks in trade for which we have good data on both number and weight came out of Africa via Sudan. It has been shown (Caldwell and Barzdo, 1985) that perhaps as much as two-thirds of this ivory was being re-exported and the country of origin was unknown. The shipments must have contained both hard, forest ivory from Congo and Zaire and soft, savanna ivory from elsewhere in Africa, and thus came from many different and widely scattered elephant populations.

When tusks are stored for several years, as was the case of the ivory exported from Somalia in 1986, there are two problems involved in studying their weight distribution. Firstly they may lose weight from dehydration. Secondly they may be systematically replaced, that is the larger and more valuable tusks being removed (usually illegally) and being replaced by smaller, less valuable tusks in order to maintain the same number of tusks. It is therefore difficult to say precisely that old stockpiles of tusks are in any way representative of the elephant population from which they were taken or, indeed, of the present elephant population.

A further problem is knowing how long the tusks have been kept before export. For many countries, e.g. Tanzania, South Africa, Zimbabwe, etc. the shipments exported each year contain not only tusks collected and marked in that year, but also tusks collected and marked several years before. In this case further study is possible, however this can be compared directly with the situation involving exports from Sudan and Somalia where it is known that tusks marked in 1986 were from animals killed as long ago as five years previously.

The second major problem with the reliability of the average tusk weights is that the distribution of weights around the mean will depend on the source and origin of the tusks and, for different killing, regimes this distribution may vary markedly. For example, in the case of elephants hunted specifically for maximum ivory yield there is likely to be more hunting pressure on larger animals than on smaller ones and the tusk weights are likely to be distributed evenly around the average weight or may even show a bias towards tusks heavier than the mean. For tusks coming from a culling programme of the type carried out in recent years in Zimbabwe, or from well organised mass poaching, the bias in weight distribution is going to be towards the smaller tusks as a result of the number of juvenile elephants involved.

In order to investigate the validity of the use of average traded-tusk weights as a factor in modelling elephant populations, and to look more closely at exports from the major producer countries, the number of tusks in each 0.5 kg weight class as a percentage of the total number of tusks has been calculated and the distribution of weight classes is shown in the form of histograms in Fig. 3.

If we assume that Burundi has been the collection point for tusks gathered in a non-selective way from most of Central and East Africa, and that there is little or no significant carving industry there, we may expect that the tusks exported from there would show the kind of weight distribution that could be expected from natural elephant populations. The result (shown in Fig. 3a) is a smooth skewed curve with a peak at about 3 kg, to the left of the mean tusk weight of 5.0 kg (see Table 1). If we further assume that most of the ivory stockpiled in Singapore was originally exported via Burundi we might expect the weight distribution curve of Singapore to show similarities with that of Burundi. In fact, as can be seen in Fig. 3b, the curves are almost identical. Figure 3c is the histogram produced when the tusk data from both Burundi and Singapore are combined.

The largest direct export of ivory from Africa in 1986 was 16,986 tusks from Somalia with an average weight of 3.0 kg. Figure 3d shows that their weight class distribution follows a broadly similar pattern to that of the combined Singapore/Burundi tusks but that the peak is at 2 kg rather than 3 kg and the bias towards the smaller tusks is more pronounced. This tends to lend some veracity to the rumour that the tusks had been subject to selective replacement whilst in storage.

Zairean tusks showed a similar pattern to those for Somalia for both 1985 and 1986 (Fig. 3e) but the number of tusks was much fewer. Again the highest proportion were in the 2 kg weight class rather than at the mean weight of 4 kg (see Table 1).

Sudan's export of 12,971 tusks, however, did not fit the same pattern (Fig. 3f). The pattern shown here is of similar quantities of tusks in each 0.5 kg weight class up to about 5 kg with a decline in the numbers of tusks weighing more than that. This pattern implies that the tusks may have been sold selectively according to weight but the presence of so many very small tusks suggests that the Sudan export of 1986 was only a proportion of a much larger stock. It was originally thought, by the CITES Secretariat, that the quota for 1986 covered all existing stocks but this clearly was not the case as Sudan announced a quota of 21,500 tusks for 1987. It is now believed that this latest quota represents the total remaining stock of tusks in Sudan, however R. Martin (pers. comm.) has suggested that the Sudanese traders used to operate by first obtaining an export order and export permit before obtaining sufficient tusks to fill the order. This system may, however, have ceased operating since the start of the quota system.

Figure 3g shows the weight class distribution of the tusks exported from Congo during 1986 and until April 1987. This demonstrates no real pattern identifiable with population structure and shows a fairly even distribution around the mean (13.4 kg, see Table 1) with a slight bias towards the lighter tusks. The 1986 data also show the bias that can occur on weighing - there being more tusks at each whole kilogramme class than at the half kilogramme intervals.

Table 3

Ivory export quotas for 1987 (as of 6 May 1987)

Country	Number of tusks	Notes	Change from 1986
Botswana	520		0
Cameroon	300		0
Chad	320		+320
Congo	3784	inc stocks of 2584	+2584
Ethiopia	530		-170
Gabon	2600		+2600
Kenya	2000	inc stocks of 800	0
Malawi	370	inc 350 polished	+350
Mozambique	200		+80
South Africa	14 000		+1900
Sudan	21 500	existing stock	+8529
Tanzania	16 000		-400
Uganda	156	existing stock	+156
Zaire	12 000*		+2000
Zambia	8500		+2700
Zimbabwe	9000		-5000
Total	91,780		-1353

* = provisional

Figure 3h shows the tusk weight class distribution of South African exports in 1986, which demonstrates a much broader distribution around the peak than shown by the Burundi/Singapore tusks but again this peak is lighter than the average tusk weight of 7.4 kg (see Table 1) and it appears likely that the prominence of small tusks would have been greater if the tusks used for the domestic carving industry had been included.

Tanzania's tusk weight class distribution (Fig. 3i) shows a similar pattern to that of South Africa with a larger proportion of small tusks, peaking in the 3 - 4 kg classes. This is again less than the average tusk weight of 7.0 kg (see Table 1). According to some knowledgeable sources, much of Tanzania's real export of ivory, perhaps even as much as or more than three times the official figure, was exported illegally via Burundi (Parker, pers. comm.).

Thus the weight distribution around the mean value is very varied and depends upon several independently operating factors. A generalised figure such as the average weight of tusks in trade is dependent upon so many variables that, on its own, it is not representative of any one population of elephants, nor is it representative of elephants in general. At best it can be used as a marker, to point towards areas of the trade or elephant management strategies which may require closer attention.

THE FUTURE

Table 3 shows the ivory quotas so far notified for 1987. It also indicates where these differ from those for 1986. Recently, much of the ivory trade has been concerned with shuffling stockpiled ivory from one place to another and generally coming to terms with the new operating procedures. This was one of the main factors that brought about such reduced import levels during 1986. That stockpiled ivory will almost certainly enter the end-markets during 1987 and may reduce the immediate demand for new stocks from Africa.

There are several potential consequences. Firstly, if producer countries are unable to dispose of their ivory through the quota system, it may cause general dissatisfaction with the overall working of the ivory control procedures. If this is coupled with a continued high level of illegal trade, via Burundi to the UAE, then the quota system may become unworkable. It is disturbing that at least one of the world's most well-known illegal traders (who, despite his Oriental origins, is not considered welcome in either the Japanese or Hong Kong ivory traders associations) is known to be moving Chinese ivory carvers into Dubai and Taiwan. Under current legislation, Hong Kong does not recognise worked ivory as a "readily recognisable part or derivative" under CITES and there is therefore a loophole in the ivory control procedures that may allow ivory, simply worked in Dubai or any of the other Arab Emirates, or indeed Taiwan, to be imported perfectly legally without any of the difficulties of CITES controls. There is also currently a significant trade between Japan and Hong Kong in cut pieces of ivory and there are considerable differences of opinion about how, and if, they should be marked. This will need to be sorted out in the near future by the CITES Secretariat and the Parties involved.

A second possible problem is the build-up of considerable stockpiles of ivory within the producer countries in Africa. Although the large stocks held in Somalia have now been sold there still remains a large amount of ivory in store in Sudan. Hopefully this will be cleared in 1987. This problem is very difficult to solve as any action taken at the consumer end of the trade route will take some years to take effect at the producer end. Although further imports may be reduced, it will take a long time for the message to get through to the poacher in Africa that it is no longer as easy as it was to sell illegally obtained ivory. Thus stockpiles will inevitably build up in Africa and will always tend to move towards the easiest outlet. This is not necessarily a deliberate action to reduce the effectiveness of the quota system, but could occur as a natural result of the recent changes in legislation.

Although both of these stumbling blocks have to be overcome, it seems most likely that the quota system will gradually have its effect throughout the international ivory trade system. Already ivory with legitimate paper-work is selling for several times the price it would without papers. If, as is likely, the markets learn better how the procedures work, it should be possible to maintain a regular supply of ivory from Africa, with a steady price, that will satisfy the demands of the trade and promote better elephant conservation. By the end of 1987 the new ivory control procedures should really begin to work in the manner they were intended.

REFERENCES

Caldwell, J.R. (1984):
Recent developments in the raw ivory trade of Hong Kong and Japan. Traffic Bulletin, 6(2):16-20.

Caldwell, J.R. and Barzdo, J.G. (1985):
The world trade in raw ivory, 1983 and 1984. In: African Elephants, CITES and the Ivory Trade. CITES Secretariat, 1986. Lausanne, Switzerland.

Caldwell, J.R. (1986):
Ivory control loopholes closing. Traffic Bulletin 8(3):49.

Martin, R. (1985):
Establishment of African ivory export quotas and associated control procedures. In: African Elephants, CITES and the Ivory Trade. CITES Secretariat, 1986. Lausanne, Switzerland.

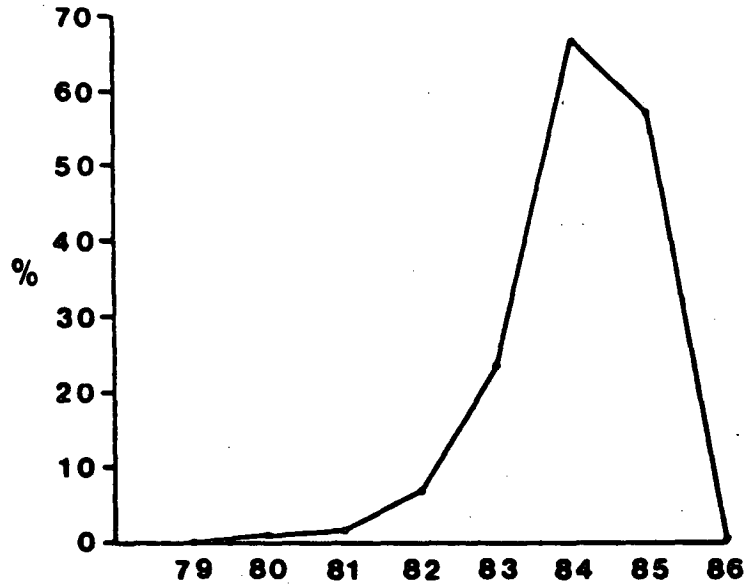
Milliken, T. (1985):
Japan's ivory trade. Traffic Bulletin 7(3/4):43.

Parker, I.S.C. (1979):
The Ivory Trade. Report for the US Fish and Wildlife Service. Typescript.

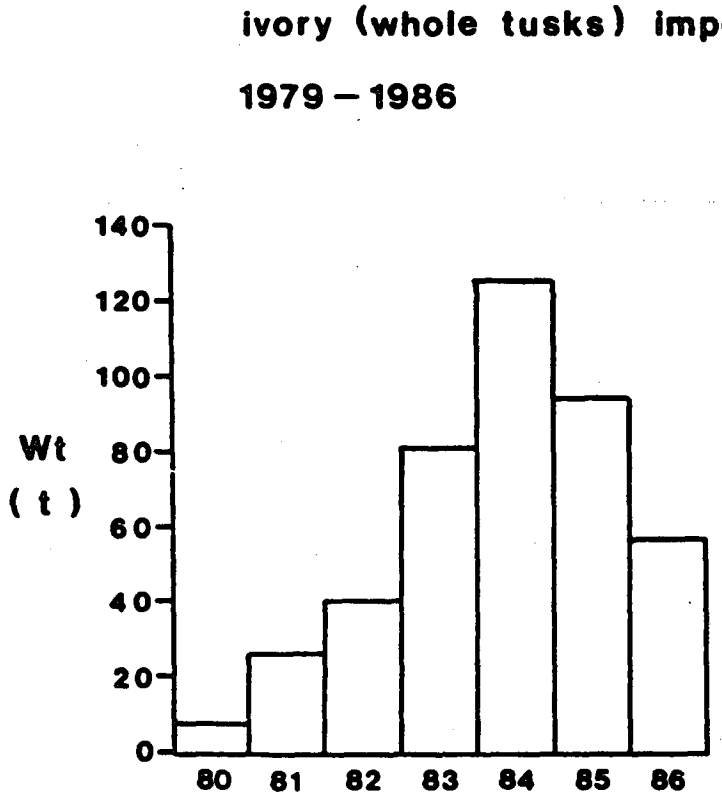
Pilgram, T. and Western, D. (1984):
Managing elephant populations for ivory production. Pachyderm, 4:9-11.

WTMU, (1983):
The Hong Kong and Japanese trade in unworked ivory 1979-1982. Traffic Bulletin, 5(1):7-10.

FIGURE 1

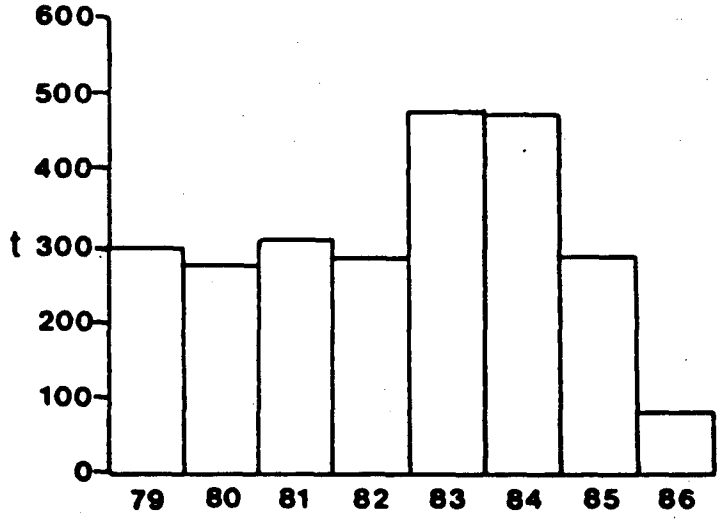


a. Percent of Hong Kong's import of raw ivory (whole tusks) imported via Japan 1979 – 1986

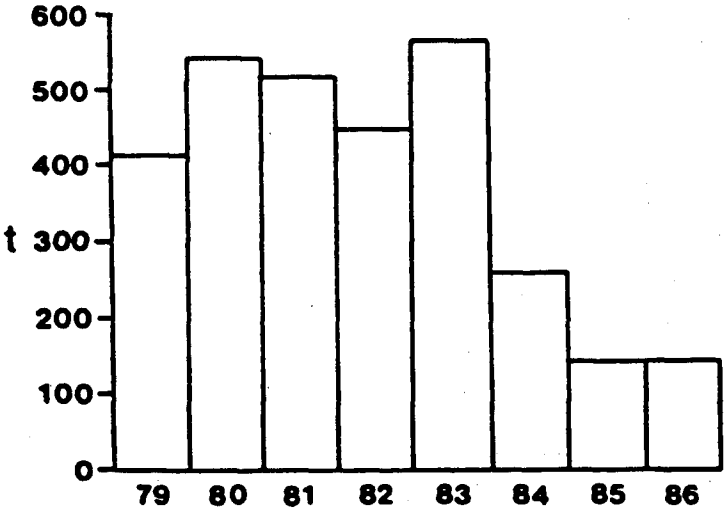


b. Hong Kong's import of raw ivory (cut pieces and scrap) 1980 – 86 [from annual reports to CITES]

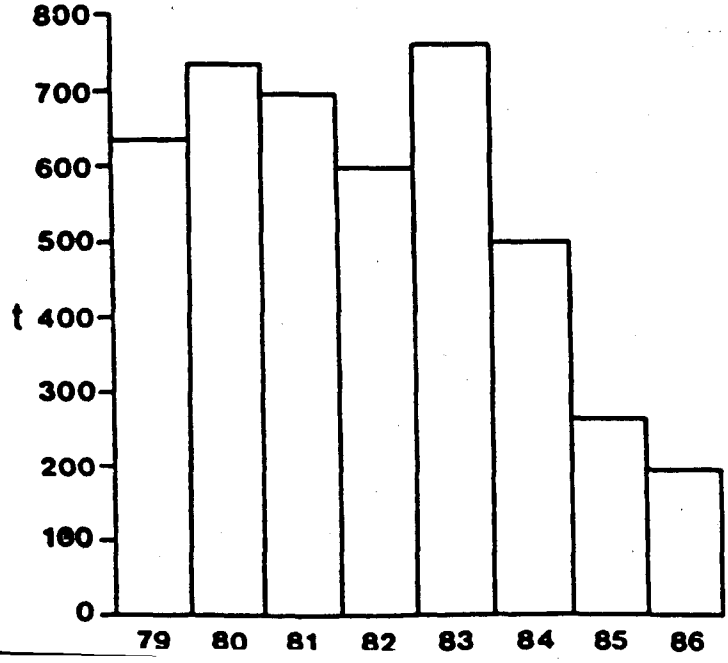
FIGURE 2



a. Japan's gross import of raw ivory (including waste) 1979-1986 [from Customs statistics].



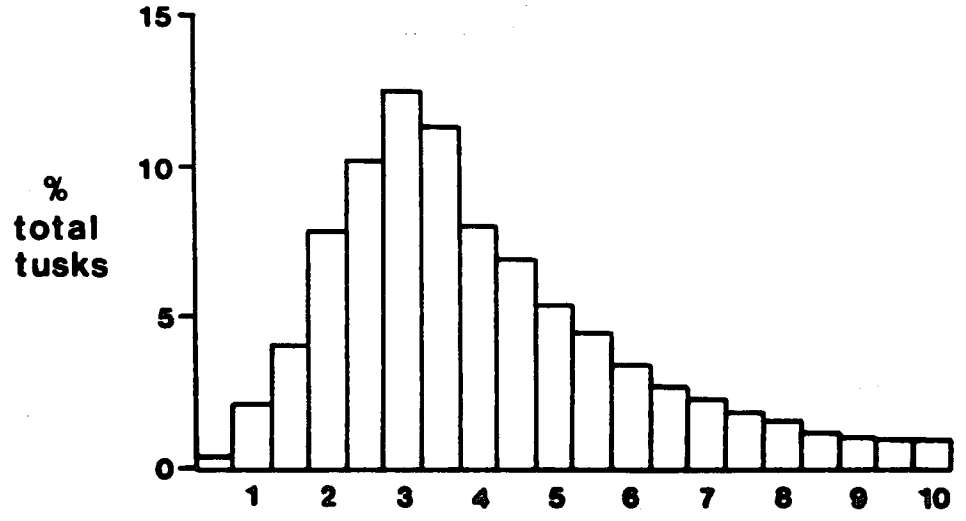
b. Hong Kong's gross import of raw ivory (whole tusks) 1979-1986 [from annual reports to CITES].



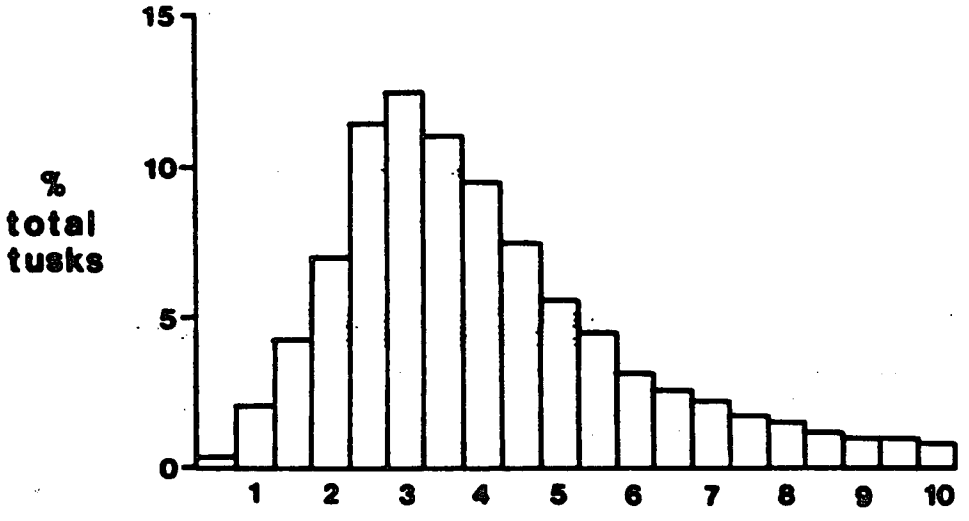
c. Hong Kong and Japan's combined import of raw ivory (less trade between them) 1979-1986.

FIGURE 3 (a-i)

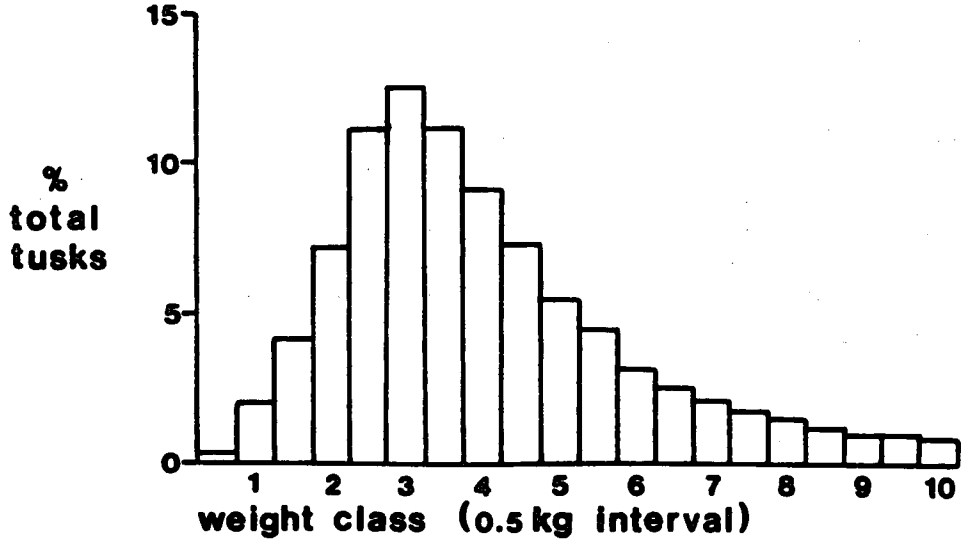
a. BURUNDI 1986 n=17813



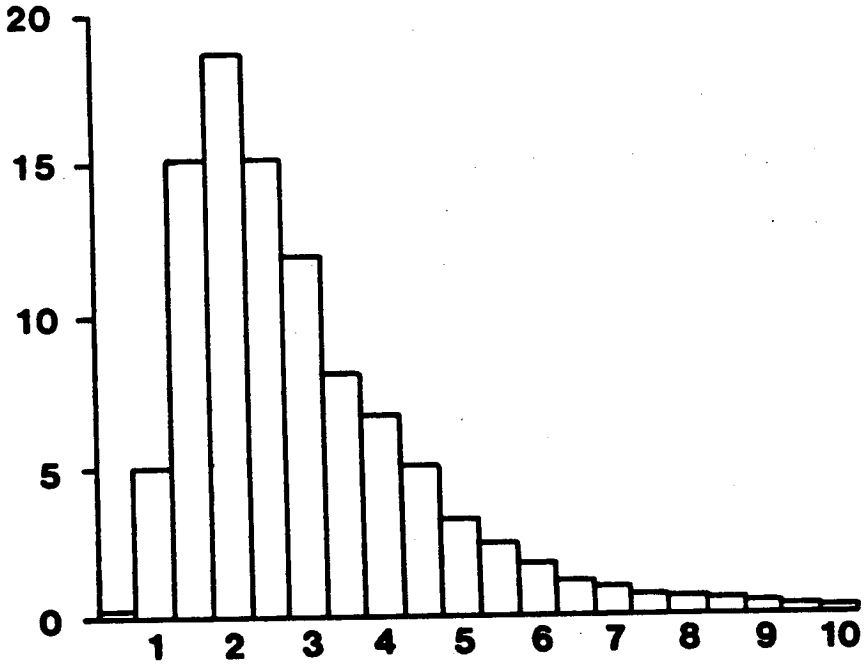
b. SINGAPORE 1986 n=52805



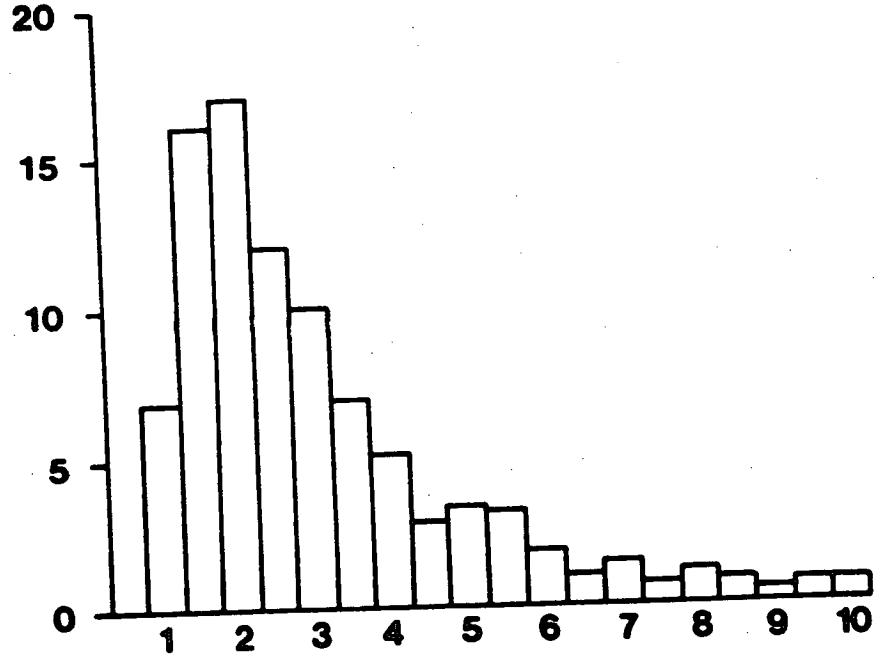
c. SINGAPORE AND BURUNDI COMBINED 1986 n=70618



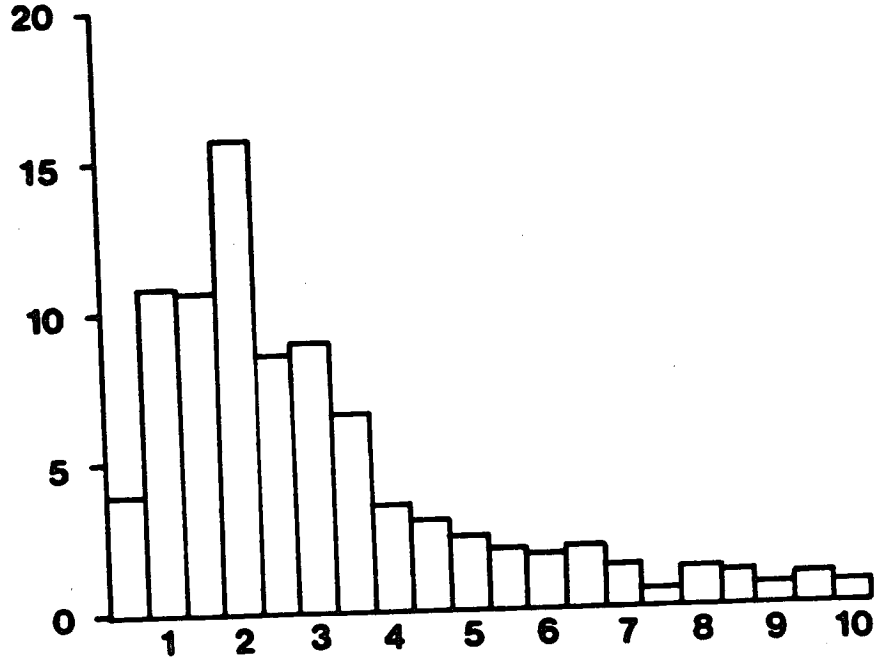
d. SOMALIA 1986 n = 16915



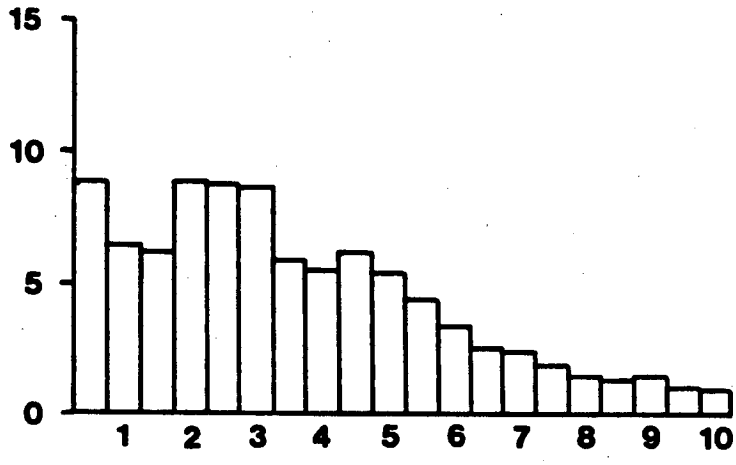
e. ZAIRE 1986 n=1379



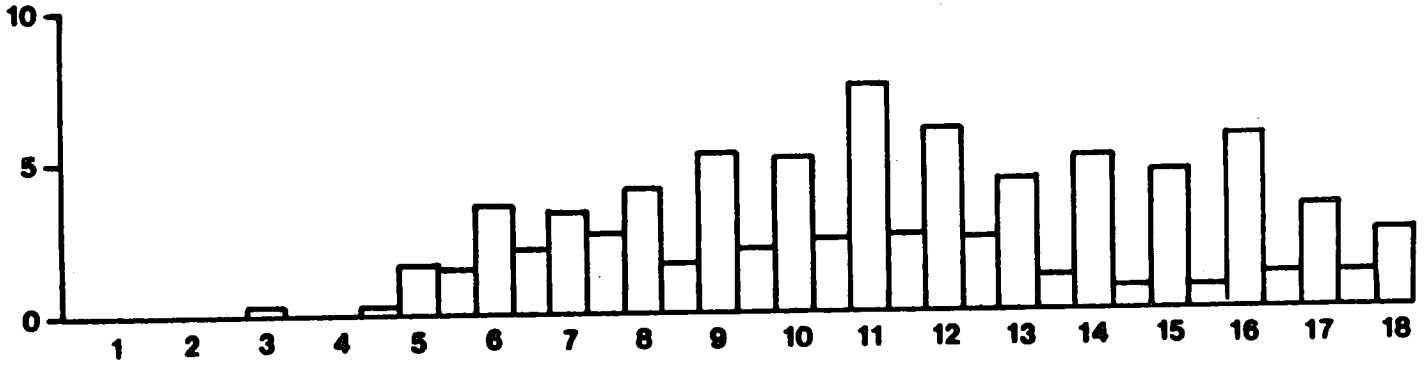
e. ZAIRE 1985 n=905



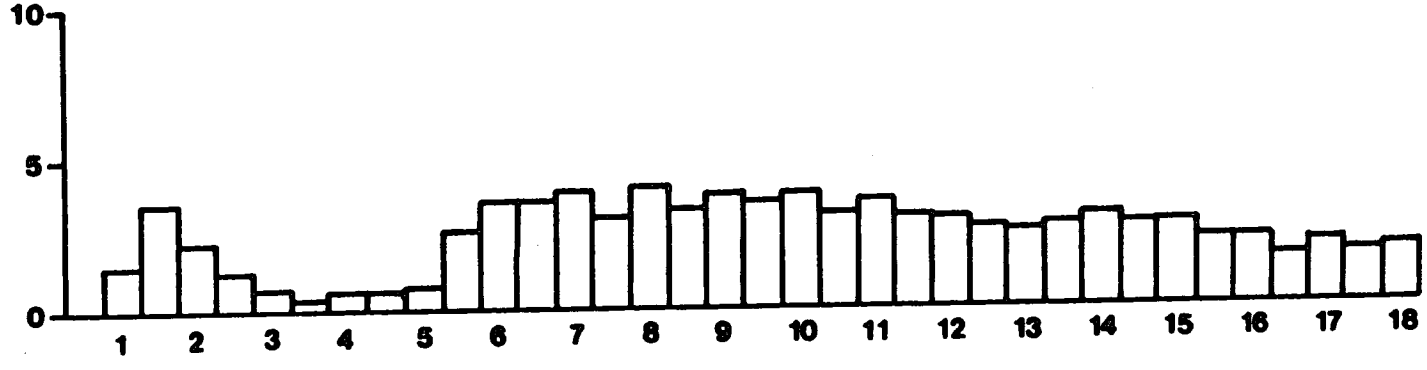
f. SUDAN 1986 n = 12971



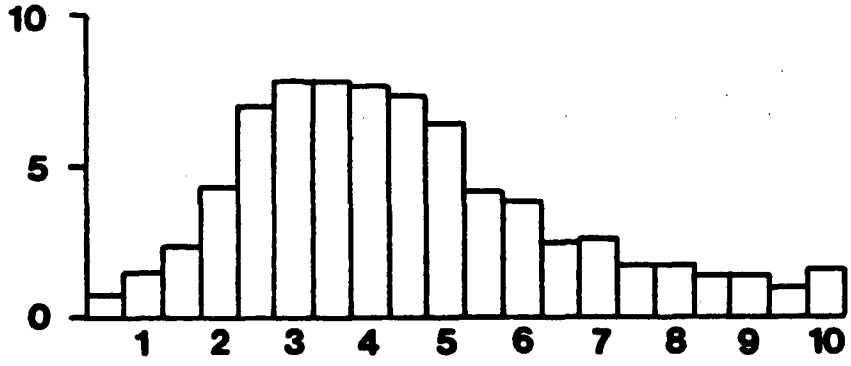
g. CONGO 1986 n= 610



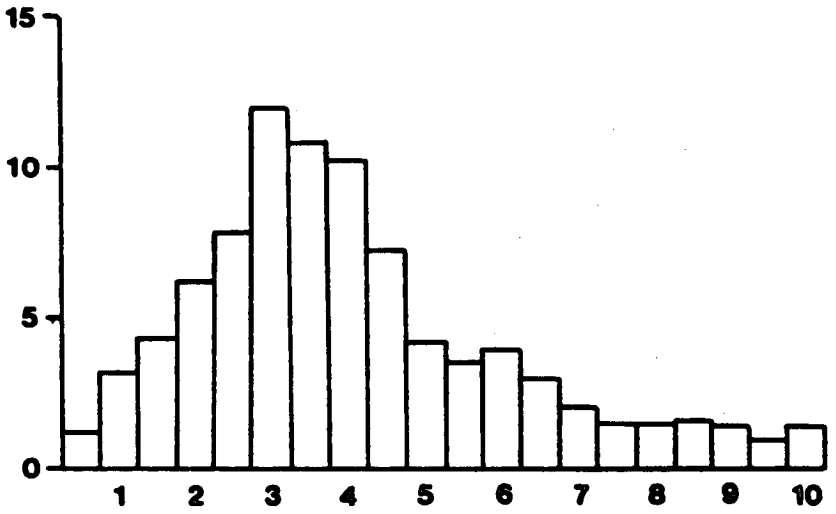
g. CONGO 1987 n= 2520



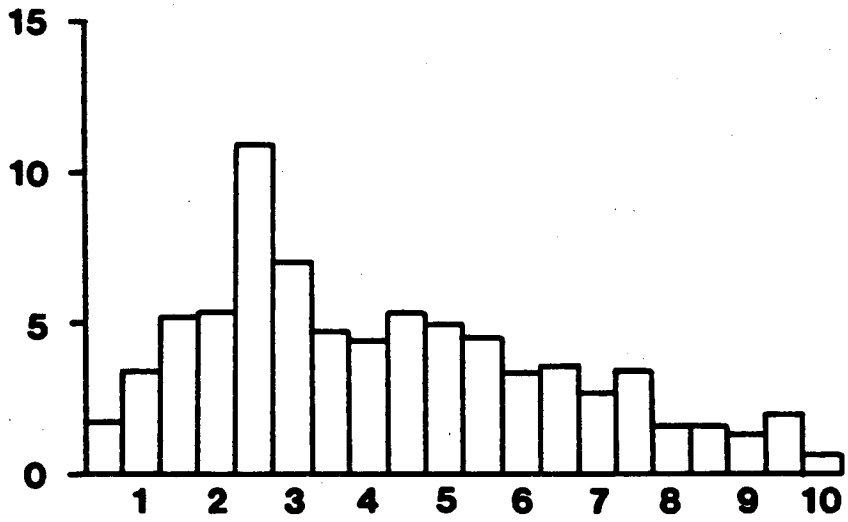
h. SOUTH AFRICA 1986 n = 3925



i. TANZANIA 1986 n= 1581



j. ETHIOPIA 1986 n=640



ELEPHANT POPULATION ESTIMATES, TRENDS, IVORY QUOTAS AND HARVESTS

Report to the CITES Secretariat
from
The African Elephant and Rhino Specialist Group

Population Estimates

Estimates for the African elephant population (Table 1) are taken from the AERSG meeting held at Hwange in 1981, Martin's report to the CITES Secretariat on the quota system in 1985, and the recent AERSG meeting at Nyeri, Kenya in May 1987. A report on populations from Burrill and Douglas-Hamilton was not available at the time of completing this report on 11 July 1987 (see Addendum page 615). Notes on these estimates are as follows:

1. The West African data are not particularly significant in the context of the CITES quota system. The West African population is less than 3% of the total African population, and no countries from West Africa have set quotas for ivory export. The data for all countries are too poor to allow a meaningful statement of population trend.

2. The Central African data is equally poor. The Zaire elephant population could lie anywhere between 100,000 and 800,000 animals. The apparent increases in the Cameroun and Gabon elephant populations over the past 6 years are a reflection of the estimates rather than any real increase. Recent work by Richard Barnes suggests that the Gabon population is about 55,000 animals, however the Gabonaise authorities have estimated the population at 93,000 in their latest quota submission and the AERSG group working on Central Africa put the population at 76,000. This should illustrate the level of accuracy involved.

3. In East Africa there has been no recent survey for Ethiopia and the Estimate of the Wildlife Conservation Organisation for their quota submission has been taken to apply to all three years. The Kenya decline from 65,000 elephants to 35,000 elephants is spectacular and data can be expected to be better than most countries. The 1987 Somalia estimate of 6,000 is no more than an educated guess based on reports of deteriorating range conditions in the country. Similarly, the latest estimate of 40,000 elephants in the Sudan has no sound backing.

   The Tanzanian estimates since 1981 are doubtful, but if the decline in the Selous Game Reserve population can be taken as an indicator, elephants are unlikely to be present at densities greater than 1/sq. km anywhere in United Republic of Tanzania. Recent estimates by the government (quota submission) of 20,000 elephant in Rungwa (1,200 sq. km.) and 50,000 in Moyowosi (6,000 sq. km) are unlikely.

4. In the Southern Region, estimates vary from excellent to very poor. Counts in Botswana, South Africa, Namibia and Zimbabwe are likely to be fairly accurate, whilst in Zambia, Mozambique and Angola the information is either incomplete or absent.

The 1987 estimates can be summarized as follows:

Western region	16,290
Central region	375,800
Eastern region	190,720
Southern region	181,600
Africa (total)	764,410

It would appear that the African population has decreased by some 36% since 1981. However, it is stressed that the data for some of the largest populations on the continent (e.g. Zaire) are extremely crude.

It is necessary to point out that the population estimates critically affect the deductions made later in this report. If indeed elephant populations in certain countries (Zaire, Sudan, Kenya, United Republic of Tanzania, Mozambique and Zambia) have declined as greatly as the AERSG figures indicate, then this implies very large quantities of ivory entering the world market.

Trends

The data for individual countries in the Western and Central regions are not good enough to present clear trends. The decline in numbers has been estimated for the regions as a whole. In East Africa, the regional trend fits the model of Pilgram and Western for a population which is being subjected to a constant harvest. We have modelled crudely the harvest of elephant required annually to correspond with the estimates in 1981, 1985 and 1987 for all regions, assuming a constant harvest and an annual population growth rate of 3%.

Region	Net rate of decline in 1987 (% per annum)	Annual offtake of elephant
Western	-1.7	770
Central	-2.8	22,500
Eastern	-18.9	51,500
Southern	-11.3	29,300
Africa	9.3	104,000

In the Western and Central regions, the above figures have been used to calculate an expected offtake from individual countries based on the proportion which each country forms of the regional population.

In East Africa, certain individual country estimates of trend and harvest (Kenya, Somalia, Sudan and United Republic of Tanzania) have been made using the same technique as used for regions. The Ethiopian estimate has been taken from their quota submission, and the estimates for Rwanda and Uganda are relatively insignificant.

Attention is drawn to the very spectacular current annual rates of decline in Somalia (33%), Sudan (30%), United Republic of Tanzania (16%) and Kenya (13%). The corresponding numbers of elephants being killed annually are 3,500, 18,500, 22,200 and 6,600. If these estimates are anywhere near the truth, then these four countries are contributing as much ivory as the entire quota declared for Africa in 1986.

In the Southern Region, the above modelling procedure is not appropriate to be applied across the board. Elephant conservation and management in the countries of the region ranges from excellent to very bad. The Angolan estimate is based on the regional average since there is no better recent information. The Botswana population has increased markedly since 1981, but the data reflect more a revision of estimates than any real trends (it would be impossible for an elephant population to increase from 20,000 to 51,000 in 6 years). The Malawi estimate is based on Malawi's quota submission with a small allowance for illegal hunting. The Mozambique and Zambian estimates have been calculated from the constant harvest model and show very large downward trends. In the Zambian case, this trend may improve with the new initiatives in the Luangwa Valley. In South Africa and Zimbabwe, the trends are determined by management rather than illegal hunting. South Africa's population is being held constant at about 8,000 animals and the Zimbabwean population is being reduced to about 34,000 animals.

The downward trends for many countries are sufficiently large to predict extinction in the near future. However, the lesson from West Africa suggests that it is unlikely to happen (at least at the rate predicted). Once the animals carrying significant ivory have been eliminated, the pressures are likely to decrease. Conservation awareness will also increase as in the case of the black rhino. This is small cause for comfort. The situation is one of appalling conservation and mismanagement. Economically, rather small short-term gains are being sacrificed for far greater profits which could be made under sensible management.

Production

Assuming a constant harvest situation for most of Africa, the ivory production will have been the same in 1986 and 1987. The foregoing analysis of trends leads to an estimate of population of some 193,000 tusks per annum. At a mean tusk weight of 5 kgs, this is nearly a 1,000 tonnes annually (Parker maintains that the world ivory trade has remained more or less constant at this level for many years).

Quotas

The 1986 and 1987 quotas declared by producer countries account for less than half of the production from Africa. The proposition is lowest in the Central region where about 1/4 of the ivory produced is accounted for by the quota. In the Eastern and Southern regions, the proportions are about 50% and 65% respectively.

In some individual countries, the quota is greater than 100% of production. This applies when a country claims relatively large stocks of old ivory on hand (e.g. Somalia, which recently exported about 50 tonnes of stock on hand, and South Africa, which produces relatively little ivory but has a large ivory industry). The Zimbabwe quota is greater than the number of tusks which were produced simply because fewer elephants were killed in 1986 than intended.

It is important to note that at this stage of the 1986/87 quota system, it is somewhat early to judge the validity of claims of large existing stocks of ivory. Such declared stocks should work their ivory out of the system within one or two quota years. Thereafter, the appearance of any new stockpiles should be apparent.

Legal Exports of Ivory Against Declared Quotas

Only 45% of the total quota declared by producer countries appears to have been used according to data from the CITES ivory unit and WTMU. Only Sudan, Ethiopia, Malawi and Mozambique exported amounts close to those declared. In certain cases (e.g. Zimbabwe), although the quota provided a contingency for a large number of tusks to be exported, most of the ivory was consumed in domestic carving industries.

No countries exceeded their quotas. However, this is a Pyrrhean victory. The trend data indicate that large numbers of elephants were killed in the 1986 quota year, and the inevitable conclusion is that most of this ivory was not recorded as legal trade. When legal exports are compared with elephants killed, they account for only 22% of the production. The tusks of some 89'000 elephants entered the trade illegally.

Two situations account for this:

> In certain countries, the authorities intend well but are unable to enforce the law. Although the state claims ownership of the resource, it is entirely powerless to implement its policy.
>
> In other countries, widespread corruption mocks all attempts at rational management of elephant populations.

Burundi had no quota and exported 23,000 tusks in 1986 (WTMU data). Unofficial estimates are that considerably more (50,000 tusks) left the country. Burundi derives most of its ivory from the United Republic of Tanzania, Zaire and Zambia. Even an amount of 50,000 tusks accounts for only a quarter of the predicted illegal trade. There is good evidence to suggest that large quantities of ivory are moving from central Africa to the Côte Ivoire and other West African countries, that significant trade takes place through the Sudan, and that some ivory leaves Africa directly from the east coast.

It is wrong to assume that all of the unaccounted-for production leaves Africa as raw ivory. A large quantity goes into the domestic carving industries. This is particularly true of most of the Central and West African countries. There is urgent need for a quantitative study of the internal carving industry in Africa.

Certain countries show a negative value for the illegal harvest of elephants. This apparent contradiction arises when a country has a relatively low production of ivory but intends nevertheless to export a large quantity (e.g.'South Africa and Somalia). This situation can only pertain while countries have existing stocks. It should be noted that with an annual production of less than 1,000 tusks, the accumulation in South Africa either represents about 14 years of production (which is commercially unlikely) or recently acquired significantly large stocks.

Individual Quota Submissions

Of the 18 countries which submitted non-zero quotas in 1986 and 1987, only the following submitted their quotas in the full format recommended by CITES Secretariat: Cameroun, Chad, Congo, Ethiopia, Gabon, Malawi, United Republic of Tanzania, Zambia and Zimbabwe.

Before discussing individual countries, it is perhaps worth restating the intended function of the quota submission. The forms developed by Martin are intended to reflect the management policies for elephants in any given

country. Quotas should be the end results of a logical process whereby a country estimates its elephant populations, calculates how many will die as a result of its management policy and, after allowing for existing stocks, provides an estimate of raw ivory which may enter the international trade.

Estimates for large amounts of ivory which may be confiscated should not appear on the quota submission (e.g. Zambia, United Republic of Tanzania), since it is not a result of desired management. If large amounts of ivory should be acquired in the quota year, there is no difficulty in advising the CITES Secretariat that this will be exported over and above the original quota (in effect, the quota can be revised at any time during the year).

There is no obligation for any country to use the format provided for submitting quotas. Nevertheless, by not doing so, there will inevitably remain an atmosphere of doubt surrounding the sincerity of intentions of any country which simply states a number of tusks to be exported. This is particularly true if the quota is a large number, and particularly if it is known that the country does not have a policy to exploit elephants.

In the case of the Sudan which banned all ivory exports in 1983, quotas were submitted to clear 13,000 tusks in 1986 and 21,500 tusks in 1987. This represents about 18,000 elephants. It would not be a sustainable yield from a population of 350,000 elephants, let alone the current estimated of about 100,000 elephants from the authorities in the country, or the AERSG estimate of 40,000 elephants.

The Tanzanian quota submission for 1987 is bound to give rise to query. In 1986, a quota of 16,000 was submitted of which only 2,000 tusks were exported. This year, the quota is for 18,000 tusks, of which about 7,000 will arise from elephants dying in the quota year, 2,000 are current stocks and 9,000 will be confiscated during the year. This implies that poaching cannot be prevented.

It is clear from many of the detailed submissions that the method of deriving the quota is not fully understood. Certain submissions contain arithmetic errors and contradictions. In one country, where there is no policy to cull, crop, or control problem elephants, large numbers in each of these categories have been entered.

Very good submissions were received from Chad, Congo, Ethiopia, Malawi, Zambia and Zimbabwe. These reflect the management policies of the countries and are biologically realistic.

Conclusions

There is undoubtedly a massive illegal ivory trade operating over and above the legal quota system. Some criticisms have been levelled at the quota system because of this. This is not logical. The quota system was the brainchild of the producer countries, and it was an attempt to bring this situation under control. Properly used, the quota system is no more than a statement of intent by producer countries arising from their management policies. It appears to be working in those countries where law enforcement is effective. More importantly the quota system, in conjunction with data on elephant numbers and trends, has provided the means for determining the extent of both the legal and illegal trade in ivory. Properly used, these data can provide basis for programmes to reduce and eventually eliminate the illegal trade in ivory.

It may be tempting for Parties to propose a complete ban on the ivory trade. The futility of pursuing a legal export system while the vast bulk of trade remains illegal appears to provide sound grounds for such an action.

Nevertheless, such a proposal is unlikely to succeed and the following points need to be taken into account:

- It is apparent that the illegal trade is already highly successful. A ban would not work. It has not worked for rhino horn.

- The investment in ivory worldwide is too great to countenance a ban. Such an action may well result in the withdrawal of several Parties from the Convention.

- It is highly undesirable for all trade to become illegal. This leads to a situation where nothing can be monitored or controlled.

- The quota system is in its infancy and the illegal trade is still of such magnitude that it is too early to judge its effectiveness.

- Some countries are managing and conserving their elephant populations satisfactorily. They should not be penalised by the default of others.

- There is a need to address elephant management and law enforcement problems in the producer countries.

- There are still approximately 3/4 of a million elephants in Africa. The species is not yet endangered but will become so if the illegal trade continues at present levels.

The AERSG believes that positive management for the conservation of elephants in Africa is more likely to succeed than ineffectual international trade bans.

TABLE 1. ELEPHANT POPULATION ESTIMATEES, TRENDS, IVORY QUOTAS AND HARVESTS

COUNTRY	Population estimates 1981	1985	1987	Trend % p.a.	Elephant killed in 1986	Est'd No of tusks produced	QUOTA (Tusks) 1986	Quota as % of el. killed	Tusks exported 1986	% of quota used	Exports as % of ele. killed	Illegal harvest (No. El.)	QUOTA 1987	Old Stock
WEST AFRICA														
Benin	1,250	2,300	2,100	-	99	189	0	0.0	0	-	0.0	99	0	
Ghana	970	1,000	1,100	-	52	99	0	0.0	0	-	0.0	52	0	
Guinea	800	800	320	-	15	29	-	0.0	0	-	0.0	15	0	
Ivory Coast	4,800	4,800	3,300	-	156	296	-	0.0	0	-	0.0	156	0	
Liberia	2,000	800	650	-	31	58	-	0.0	0	-	0.0	31	0	
Mali	780	700	600	-	28	54	-	0.0	0	-	0.0	28	0	
Mauritania	40	0	20	-	1	2	0	0.0	0	-	0.0	1	0	
Niger	800	800	800	-	38	72	0	0.0	0	-	0.0	38	0	
Nigeria	1,820	1,500	3,100	-	147	278	-	0.0	0	-	0.0	147	0	
Senegal	370	100	50	-	2	4	-	0.0	0	-	0.0	2	0	
Sierra Leone	500	500	250	-	12	22	-	0.0	0	-	0.0	12	0	
Togo	150	100	100	-	5	9	-	0.0	0	-	0.0	5	0	
Burkina Faso	3,500	3,500	3,900	-	184	350	-	0.0	0	-	0.0	184	0	
Subtotal	17,780	16,900	16,290	-1.7	770	1,463	0	0.0	0	-	0.0	770	0	0
CENTRAL AFRICA														
Burundi	1	1	1	-	0	0	-	-	(22,989)	No quota	-	-	-	
C A R	31,000	19,500	19,000	-	1,138	2,161	0	0.0	0	-	0.0	1,138	800	
Cameroon	5,000	12,400	21,200	-	1,269	2,412	300	12.4	100	33.3	4.1	1,217	300	
Chad	-	2,500	3,100	-	186	353	0	0.0	0	-	0.0	186	320	0
Congo	10,800	59,000	61,000	-	3,652	6,939	1,200	17.3	610	50.8	8.8	3,331	3,784	4,547
Equat. Guinea	-	1,800	500	-	30	57	-	0.0	0	-	0.0	30	0	
Gabon (NP)	13,400	48,000	76,000	-	4,550	8,646	0	0.0	0	-	0.0	4,550	2,600	12,153
Zaire	376,000	523,000	195,000	-	11,675	22,183	10,000	45.1	1,425	14.3	6.4	10,925	15,000	
Subtotal	436,200	666,200	375,800	-2.8	22,500	42,750	11,500	26.9	2,135	18.6	5.0	21,376	22,804	16,700
EAST AFRICA														
Ethiopia (NP)	9,000	9,000	6,650	-	400	760	700	92.1	640	91.4	84.2	63	530	172
Kenya	65,056	28,000	35,000	-13.3	6,600	12,540	2,000	15.9	0	0.0	0.0	6,600	2,000	800
Rwanda	150	100	70	-	2	4	-	0.0	0	-	0.0	2	0	
Somalia	24,323	8,600	6,000	-33.4	3,500	6,650	17,002	255.7	16,986	99.9	255.4	-5,440	0	
Sudan	133,772	32,300	40,000	-29.5	18,500	35,150	12,971	36.9	13,009	100.3	37.0	11,653	21,500	21,500
Tanzania	203,900	216,000	100,000	-15.7	22,200	42,180	16,400	38.9	2,001	12.2	4.7	21,147	18,150	2,000
Uganda (NP)	2,320	2,000	3,000	-	200	380	0	0.0	0	-	0.0	200	302	156
Subtotal	438,521	296,000	190,720	-18.9	51,402	97,664	49,073	50.2	32,636	66.5	33.4	34,225	42,482	24,628
SOUTHERN AFRICA														
Angola	12,400	12,400	12,400	-	2001	3,801	-	0.0	0	-	0.0	2,001	0	
Botswana	20,000	45,300	51,000	6.0	300	570	520	91.2	14	2.7	2.5	293	520	
Malawi	4,500	2,400	2,400	-	150	285	20	7.0	20	100.0	7.0	139	150	70
Mozambique	54,800	27,400	18,600	-25.5	7,200	13,680	120	0.9	96	80.0	0.7	7,149	200	
Namibia	2,300	2,000	5,000	N	500	950	1376	144.8	50	3.6	5.3	474	1,033	279
South Africa	8,000	8,300	8,200	N	500	950	12,100	1273.7	4,197	34.7	441.8	-1,709	14,000	
Zambia	160,000	58,000	41,000	-34.2	11,600	22,040	5,800	26.3	2,961	51.1	13.4	10,042	8,300	6,100
Zimbabwe	49,000	47,000	43,000	N	5,000	13,000	14,000	107.7	507	3.6	3.9	6,575	9,800	4,572
Subtotal	311,000	202,800	181,600	-11.3	27251	51,776	33,936	65.5	7,845	23.1	15.2	23,122	33,403	11,021
GRAND TOTALS	1,203,501	1,181,900	764,410	-8.8	101,923	193,653	94,509	48.8	42,616	45.1	22.0	79,493	98,689	52,349

ble 2 CONSTANT HARVEST MODELS

	WEST	CENTRAL	EAST	SOUTH	KENYA	TANZANIA	MOZAMB.	ZAMBIA	SOMALIA	SUDAN	AFRICA
ual Offtake ..	770	22,500	51,500	29,300	6,600	22,200	7,200	23,200	3,500	18,500	104,000
*******1981	17,780	436,200	438,521	311,000	65,056	203,900	54,800	160,000	24,323	133,772	1,203,501
1982	17,543	426,786	400,177	291,030	60,408	187,817	49,244	141,600	21,553	119,285	1,135,606
1983	17,300	417,090	360,682	270,461	55,620	171,252	43,521	122,648	18,699	104,364	1,065,674
1984	17,049	407,102	320,002	249,275	50,689	154,189	37,627	103,127	15,760	88,995	993,644
1985	16,790	396,815	278,102	227,453	45,609	136,615	31,556	83,021	12,733	73,164	919,454
1986	16,524	386,220	234,946	204,977	40,377	118,513	25,302	62,312	9,615	56,859	843,037
*******1987	16,250	375,306	190,494	181,826	34,989	99,869	18,862	40,981	6,403	40,065	764,329
1988	15,967	364,066	144,709	157,981	29,438	80,665	12,227	19,011	3,096	22,767	683,258
1989	15,676	352,488	97,550	133,420	23,722	60,885	5,394	-3,619	-312	4,950	599,756
1990	15,376	340,562	48,976	108,123	17,833	40,511	-1,644	-26,928	-3,821	-13,401	513,749
decline 1987 ..	-1.7	-2.8	-18.9	-11.3	-13.3	-15.7	-25.5	-34.2	-33.4	-29.5	-9.3

ADDENDUM TO DOC. 6.21 ANNEX 2

A more extensive analysis of elephant numbers, trends and distribution and an attempt to derive elephant numbers in uncensused parts of their range followed the May 1987 AERSG meeting held in Nyeri in Kenya. The title page and continental estimates from this work by Anne Burrill and Iain Douglas-Hamilton are appended to this report. Except for the East African region their totals are considerably higher than the AERSG figures. The authors emphasize that their figures are maximum estimates as the methods used may lead to overestimates and they do no accept the figure of 584,551 derived from their model for Central Africa. The following table highlights the major differences.

	AERSG 1987 Estimate	Burrill & Hamilton 1987 Estimates	Percent Difference
West Africa	16,290	24,388	+50%
Central Africa	375,800	584,551	+56%
East Africa	190,000	175,777	- 8%
Southern Africa	181,600	235,840	+30%

In West and Central Africa a constant harvest model for trend and elephant deaths would no longer fit the data since the new estimates imply that the elephant populations in these regions have increased. However in East and Southern Africa such a model may still apply. In the case of East Africa the new data indicate an even greater decline whilst in Southern Africa the new data do not alter the conclusions.

The title page, abstract and Appendix VIII of Burrill & Douglas-Hamilton's report are appended.

GRID
GLOBAL RESOURCE INFORMATION DATABASE

GRID
CASE STUDY SERIES
NO. 2

NAIROBI
JUNE 1987

African Elephant Database Project

Anne Burrill and Iain Douglas-Hamilton

Funded by World-Wide Fund for Nature (WWF)
and the Elsa Wild Animal Appeal
in co-operation with

GEMS
GLOBAL ENVIRONMENT MONITORING SYSTEM
UNITED NATIONS ENVIRONMENT PROGRAMME

African Elephant Database Project

ABSTRACT

The objective of this report is to provide information on elephant numbers, distribution and trends, and factors affecting these, which will be helpful to countries in reviewing and setting quotas under the CITES Ivory Export Quota agreement.

The data on elephants have been acquired from published scientific literature, reports of serial or ground surveys, and from a series of questionnaires distributed up to December 1986. They have been exhaustively reviewed by the African Elephant and Rhino Specialist Group (AERSG) of IUCN. The total range of the elephant is estimated at 5,921,000 km^2 46% in Central Africa, 25% in East Africa, 25% in Southern Africa and 5% in West Africa. Of the total range nearly 30% is rainforest and largely uncensused to this day.

On the basis of these data, and computer modelling, the factors correlated to elephant density have been determined. The most significant positive correlation was with effective protection.

Elephant numbers were then projected for each country, by computer modelling. The regional totals were West Africa 24,000; East Africa 176,000; Southern Africa 236,000. For Central Africa the only data input came from areas of abundance in Gabon and CAR. When extrapolated to other forested areas they gave a regional total of 585,000; thought to be unrealistically high.

Trends were also calculated from successive estimates. The East African weighted trends were -6.8% per annum for protected areas, and -14.2% per annum for unprotected areas, with an overall weighted annual trend of -8.1%. In Southern Africa the weighted trend for countries with little poaching was 0.7% per annum, and in the heavily poached countries -8.2% per annum. Trend data for the rest of Africa were fragmentary, but in the northern savannahs elephants were mainly decreasing in a band across the continent from Somalia to Senegal, with a weighted mean of -17.8% per annum. No quantitative data were available for trends in the forest, but informants suggest variations from stability or increase in Gabon, to rapid decrease in Eastern Zaire.

Through this project, a central data base of elephant populations has been established at UNEP within the Global Environment Monitoring System (GEMS) as part of its Global Resource Information Database (GRID). As further data concerning elephants are obtained, they can also be incorporated into the database for the purposes of updating the results reported herein.

Appendix VIII

Comparison of Continental Estimates

		PREVIOUS STUDIES				THIS STUDY		
		1979 (1)	1981 (2)	1985 (3)	AERSG 1987	GIS 1987	% PROJECTED	% PROTECTED.
CENTRAL AFRICA	CAMEROON	16200	5000	12400	21200	58328	98%	16%
	CAR	63000	31000	19500	19000	37186	81%	25%
	CHAD	15000	-	2500	3100	6267	67%	37%
	CONGO	10800	10800	59000	61000	73278	100%	2%
	EQUATORIAL GUINEA	1300	-	1800	500	5445	100%	0%
	GABON	13400	13400	48000	76000	74396	73%	8%
	ZAIRE	377700	376000	523000	195000	329651	98%	9%
EAST AFRICA	ETHIOPIA	900	-	9000	6650	9288	100%	42%
	KENYA	65000	65056	28000	23000	20809	0%	67%
	RWANDA	150	150	100	50	48	29%	77%
	SOMALIA	24300	24323	8500	6000	4482	0%	12%
	SUDAN	134000	133722	32300	40000	29760	71%	50%
	TANZANIA	316300	203900	216000	85000	108779	14%	69%
	UGANDA	6000	2320	2000	2300	2611	5%	80%
SOUTHERN AFRICA	ANGOLA	12400	12400	12400	12400	40426	100%	21%
	BOTSWANA	20000	20000	45300	51000	58096	12%	35%
	MALAWI	4500	4500	2400	2400	2794	16%	80%
	MOZAMBIQUE	54800	54800	24700	18600	20013	1%	20%
	NAMIBIA	2700	2300	2000	5000	4963	1%	61%
	SOUTH AFRICA	7800	8000	8300	8200	9075	11%	91%
	ZAMBIA	150000	160000	58000	41000	54699	30%	90%
	ZIMBABWE	30000	47000	47000	43000	45774	3%	80%
WEST AFRICA	BENIN	900	1250	2300	2100	2267	34%	66%
	BURKINA FASA	1700	3500	3500	3900	4756	54%	61%
	GHANA	3500	970	1000	1100	2964	88%	74%
	GUI BISSAU	-	-	-	20	56	29%	0%
	GUINEA	300	800	800	300	757	100%	11%
	IVORY C	4000	4800	4800	3300	3785	2%	44%
	LIBERIA	900	2000	800	650	3901	100%	11%
	MALI	1000	780	700	600	896	45%	19%
	MAURITANIA	160	40	0	20	105	100%	0%
	NIGER	1500	800	800	800	609	19%	91%
	NIGERIA	2300	1820	1500	3100	3345	45%	79%
	SENEGAL	450	200	100	50	142	71%	29%
	SIERRA LEONE	300	500	500	250	405	73%	67%
	TOGO	80	150	100	100	400	0%	24%

SOURCES: (1) DOUGLAS-HAMILTON (1979), (2) CUMMING AND JACKSON (1984), (3) MARTIN (1985), AERSG 1987, THIS STUDY

Some changes reflect real trends (Sudan, Kenya) others are corrections of wrong information (Malawi, Gabon) or a combination of both factors (Botswana) and some are affected by inflated projections (Central African countries, Angola). GIS projections can be used as maximum estimates. The percentage of the current GIS estimate which is projected is given. The percentage of elephants living in protected areas, nominal or otherwise, is also given.