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This study compared the trade in reptiles and amphibians in the United Kingdom between 1992–3 and 2004–5. In particular, the impacts of captive breeding and colour and pattern morphs on price structures were examined. The number of amphibian and reptile species in the trade more than doubled over this period, and less than a third of the species traded were common to both trading periods. More traded species were listed by CITES in 1992–3 than in 2004–5. Taking into account inflation, the study showed that the price of all groups of reptiles and amphibians recorded increased over the ten-year period, and that some snake species had done so dramatically when colour and pattern morphs were considered. The price change of chelonians was probably the result of responses to changes in various trade regulations. Price increases for amphibians seemed to represent their increased popularity, coupled with the overhead costs of captive breeding on a commercial scale being transferred to the hobbyist. The increased popularity of captive-bred colour and pattern morphs could alleviate pressure on wild stocks. On the other hand, as such animals are predominantly being produced outside their countries of origin, no benefits accrue to local people and trade could undermine sustainable use programmes for wild animals.

Key words: CITES, economics, sustainability, wildlife trade

INTRODUCTION

Wildlife trade is central to the relationship between sustainable development and biodiversity conservation (Broad et al., 2001). If carried out in a sustainable manner, wildlife trade can provide direct use values for local people and therefore has a significant conservation value (Bodmer & Lozano, 2001). Equally, wildlife trade can provide benefits for the business sector and national economies, and income for rural communities (Oldfield, 2003). Indeed, collecting wildlife for trade may supplement the income of rural people by as much as 4.5 times the national minimum wage in one season (Roe et al., 2002; Goodman & Benstead, 2003).

The price of a traded species can be indicative of scarcity and demand (Stiglitz & Walsh, 2002; Rivalan et al., 2007). The money paid to field collectors, however, can be as much as 6,000 times lower than the retail price (Brady & Griffiths, 2000). On the other side of the coin, establishing and monitoring sustainable harvesting quotas for many species is problematic (Holmern et al., 2002; Schoppe, 2009).

Captive breeding is one way of meeting market demands without threatening wild populations and, if carried out *in situ*, can benefit local communities. However, where commercial captive breeding of species does not occur in the natural range, no economic benefit is returned to range states (Leader-Williams & Tibanyenda, 1996). Increased commercial captive breeding of a popular traded species can result in a decreasing export value for a species in its range state (Leader-Williams & Tibanyenda,1996; Gorzula et al., 1997) and fracture the species–habitat relationship. This would reduce the incentive for the maintenance of wild populations and their natural habitats (Thomson et al., 1992). Furthermore, if collectors do not own the land from which individuals are harvested they may not have the power to protect it.

Reptiles and amphibians have become increasingly popular as pets, and there is a continued growth in the range of species and taxonomic groups being offered to hobbyists (Altherr & Freyer, 2001). An estimated one million live reptiles were traded worldwide in 1990 (Fitzgerald, 1989), and in 2002 the global value of the live herpetofauna trade was estimated at $6 million per annum (Roe et al., 2002). However, many species of herpetofauna in trade are not protected by trade legislation (Hoover, 1990); for example, none of the 25 most popular traded live amphibians in the USA in 2005 were listed by CITES (Schlaepfer et al., 2005).

Some species of economically important herpetofauna appear resilient to high levels of collecting (Shine et al., 1999; Andreone et al., 2005, 2006). If a species has an economic value, there is an incentive to maintain wild populations and associated habitats. For example, projects are being conducted in Latin America for the sustainable ranching and collection of dendrobatid frogs. Such projects aim to alleviate poverty, preserve habitats and populations, and even diminish the impacts of illegal trade (GEF, 2009).

The economics of the reptile and amphibian trade, however, are complicated by colour and pattern morphs that command relatively high market prices (Auliya, 2003; Federation of British Herpetologists, 2004). Many reptiles and amphibians are naturally polymorphic: deviations from the wild coloration and pattern of reptiles and amphibians can result from selective breeding, genetic

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Table 1. Turnover of species traded between 1993 and 2005 and the percentage of species found to be traded in both periods.

Group	1992–3 study	2004–5 study	Percentage of species traded in 2004-5 and not 1992–3	1992–3 and not 2004–5	Both periods
Snake	77	105	46%	33%	51%
Lizard	96	234	70%	22%	27%
Turtle	24	57	68%	25%	29%
Crocodile	2	3	33%	0%	67%
Frog	41	98	71%	32%	26%
Salamander	8	25	72%	13%	27%
Caecilian	0	4	100%	0%	0%
Total	248	526	65%	27%	31%

variations and temperature changes during development (Peltz, 1992; Bruins, 1999). Colour and pattern morphs may indirectly benefit the conservation of wild herpetofauna. Morphs created through selective breeding are more vividly coloured than their wild counterparts and, because they are more desirable, may serve to discourage people from importing wild-caught specimens (Clark, 1996). This may reduce pressure on endangered populations and/or remove economic benefits from range states.

Previous studies into the live trade in herpetofauna have tended to focus on particular taxonomic groups (Jenkins, 1997; Gorzula et al., 1997; Brady & Griffiths, 2000; Pendry & Allan, 2002; Carpenter et al., 2004) or specific trade-related issues (Fisher & Garner, 2007). This study aims to assess the impacts of captive breeding, in particular of colour and pattern morphs, on the price structure of the herpetofauna market in the UK, as an indicator of the extent to which *ex situ* commercial captive breeding could reduce impacts on *in situ* populations. We also examine the proportion of traded reptile and amphibian species listed by CITES in 1992–3 and 2004–5. In particular, we examine the dynamics of the herpetofauna markets in the UK over a ten-year period.

METHODS

To investigate the dynamics of the market, we compared species lists and prices collected in the 1990s with those collected in 2004–5.

The 1990s sample consisted of 13 price lists from shops selling reptiles and amphibians in 1992–3. The more recent sample was obtained by surveying 22 pet shops in south-east England selling herpetofauna in 2005 and from 60 UK online retailers for the period 2004–5. In shops where a range of prices were available for a single species in one enclosure, the median price was taken, taking care to record data for colour and pattern morph reptiles and amphibians separately. The average price for each species traded in each period was then calculated to compare prices of species traded in 1992–3 and 2004–5. *Pantherophis guttatus*, *Pogona vitticeps* and *Eublepharis macularius* occurred in such a wide variety of colour and pattern morphs that it was difficult to distinguish these from the wild form, and data for these three species were not included in the colour and pattern morph analysis.

In order to estimate the percentage increase or decrease in the price of reptiles and amphibians between 1993 and 2005, the retail price index (RPI) for January 1993 and June 2005 was used (UK Statistics Authority, 2005). The RPI measures the changes in prices at which retailers dispose of their goods to consumers (UK Statistics Authority, 2005) and provides a measure of inflation over time so that the "true" price increase or decrease can be calculated. For example, according to the RPI £1 in January 2005 would have been worth £1.36 in January 1993.

The following data were used:

A = Price of species in 1992–3
B = Price of species in 2004–5
P (price of species in 2004–5 if price had followed the RPI) = A*1.36
Pr (real terms price change) = B–P
PI (percentage price change in real terms incorporating RPI) = Pr/P*100

The CITES website was used to ascertain whether or not a traded species was listed on CITES Appendix I or II.

RESULTS

The number of species in the trade more than doubled from 248 in 1992–3 to 526 in 2004–5 (Table 1). Even relatively unknown and fossorial species such as caecilians were offered to hobbyists in 2004–5, suggesting that there is a market for a diverse range of species. However, the increase in species is disproportional across the orders (χ^2=11.19, df=4, P<0.05), with particularly large increases for lizards, chelonians and amphibians. Species turnover between the two time periods was high: only 31% of species were traded in both time periods.

Many species of snakes that had been popular in the trade for a long time (e.g. *Python regius* and *Boa constrictor*) showed a relative decrease in price between 1992–3 and 2004–5 (Table 2), compared to a 40% increase for colour and pattern morphs. In contrast, species of more

Table 2. The percentage price change in wild-phase snake prices from 1993 to 2005 incorporating inflation. Figures in italics represent price increase if colour and/or morph reptiles and amphibians are included in the analysis.

Species	Percentage price change 1993–2005	Average price 1993 (£)	Average price 2005 (£)
Northern rough green snake (*Opheodrys aestivus*)	440%	27.81	150.00
African house snake (*Lamprophis fuliginosus*)	172%/*167%*	22.23	60.39/*59.40*
False water cobra (*Hydrodynastes gigas*)	104%	62.72	127.67
Sand boa (*Gongylophis colubrinus)*	81%	90.59	163.74
Malagasy hognose (*Leioheterodon madagascariensis*)	44%	104.53	150.00
Common garter snake (*Thamnophis sirtalis*)	40%/*462%*	18.06	25.35/*101.53*
Sun beam snake (*Xenopeltis unicolor*)	30%	50.18	65.00
Western hognose snake (*Heterodon nasicus*)	27%	60.63	77.10
Corn snake (*Pantherophis guttatus*)	25%	44.08	55.28
Beauty snake (*Orthriophis taeniurus*)	13%	57.59	65.27
Scarlet king snake (*Lampropeltis triangulum*)	7%	81.90	87.36
Western rat snake (*Pantherophis obsoletus*)	4%	48.78	50.52
Pacific boa (*Candoia carinata*)	1%	162.72	164.15
Yellow anaconda (*Eunectes notaeus*)	0%	104.53	104.98
Baird's rat snake (*Pantherophis bairdi*)	–2%	68.78	67.77
Royal python (*Python regius*)	–10%/*938%*	83.47	75.21/*866.69*
Indian python (*Python molurus*)	–12%	160.46	141.67
Common king snake (*Lampropeltis getula)*	–12%	72.18	63.40
Eastern pine snake (*Pituophis melanoleucus*)	–17%	86.32	71.99
Macklot's python (*Liasis mackloti*)	–18%	174.22	142.84
D'Alberti's python (*Leiopython albertisii*)	–18%	313.60	256.50
Scrub python (*Morelia amethistina*)	–25%	278.75	210.00
Diadem snake (*Spalerosophis diadema*)	–25%	68.99	51.67
Reticulated python (*Broghammerus reticulatus*)	–30%/*1004.3%*	132.41	92.50/*1462.17*
Boa constrictor (*Boa constrictor*)	–31%/*48.0%*	182.35	126.11/*269.90*
Cuban boa (*Epicrates angulifer*)	–34%	223.0	147.78
Children's python (*Antaresia childreni*)	–35%	125.44	82.01
Indigo snake (*Drymarchon corais*)	–36%	278.75	177.50
Carpet python (*Morelia spilota*)	–38%	243.91	150.78
Prairie king snake (*Lampropeltis calligaster*)	–39%	114.99	70.00
Rosy boa (*Lichanura trivirgata*)	–41%	156.80	92.50
Green tree python (*Morelia viridis*)	–44%/*–47%*	689.91	383.33/*367.19*
Rainbow boa (*Epicrates cenchria*)	–52%/*–46%*	243.91	116.85/*133.00*
African rock python (*Python sebae*)	–53%	160.28	75.00
Blood python (*Python curtus*)	–54%/*–47%*	435.55	200/*231.35*
Grey banded king snake (*Lampropeltis alterna*)	–57% / *–50%*	181.19	78.80/*90.99*
Malagasy ground boa (*Sanzinia madagascariensis*)	–60%	1112.68	447.50
Gopher snake (*Pituophis catenifer*)	–72%/*–74%*	255.76	71.18/*67.36*
Dumeril's boa (*Acrantophis dumerili*)	–79%	987.24	203.92
Olive python (*Liasis olivaceus*)	–90%	1393.76	146.25

interest to the specialist keeper (e.g. *Morelia viridis*, *P. curtis* and *Epicrates cenchria*) showed a decrease in price in both wild-types and colour and pattern morphs. Overall, the mean percentage price change for "wild-phase" lizards was +12%, compared to +40% when the tokay gecko colour morphs were included. Certain chameleons and geckos increased their prices, while other geckos, basilisks and the Yemenese chameleon have dropped in

Table 3. The percentage price change in normal-phase lizard prices from 1993 to 2005 incorporating inflation. Figures in italics represent price increase if colour and/or pattern morphs are included in the analysis

Species	Percentage price change 1993–2005	Average price 1993 (£)	Average price 2005 (£)
Parson's chameleon (*Calumma parsonii*)	455%	179.45	995.00
Common blue tongue skink (*Tiliqua scincoides*)	225%	55.75	180.93
Collared lizard (*Crotaphytus collaris*)	76%	22.93	40.38
Broad tailed day gecko (*Phelsuma laticauda)*	72%	30.98	53.31
Black and white tegu (*Tupinambis merianae)*	51%	142.86	215.99
Striped day gecko (*Phelsuma lineata)*	50%	32.27	48.47
Rough tailed rock agama (*Laudakia stellio*)	43%	24.39	34.88
Plated lizard (*Gerrhosaurus flavigularis*)	37%	29.24	39.98
Southern flat-tailed gecko (*Uroplatus sikorae*)	30%	76.66	99.98
Panther chameleon (*Furcifer pardalis*)	27%	118.47	152.32
Brown anole (*Anolis sagrei*)	26%	6.69	8.45
Green anole (*Anolis carolinensis*)	26%	7.64	9.59
Tokay gecko (*Gekko gecko*)	21%/*1099%*	19.26	23.27/*230.92*
Butterfly lizard (*Leiolepis belliana*)	16%	25.78	30.00
Chuckwalla (*Sauromalus obesus*)	9%	124.04	135.00
Nile monitor (*Varanus niloticus*)	7%	86.76	93.17
Knight anole (*Anolis equestris*)	4%	39.01	40.48
Giant day gecko (*Phelsuma madagascariensis*)	–1%	61.56	61.03
Bearded dragon (*Pogona vitticeps*)	–1%	76.66	74.21
Leopard gecko (*Eublepharis macularius)*	–2%	47.69	38.51
Eyed lizard (*Timon lepidus*)	–4%	34.84	33.33
Cunningham's skink (*Egernia cunninghami*)	–15%	76.66	65.00
Sudan plated lizard (*Gerrhosaurus major*)	–17%	44.75	37.12
Pictus gecko (*Paroedura pictus*)	–22%	41.35	32.25
Water monitor (*Varanus salvator*)	–29%	168.65	120.00
Spiny chameleon (*Furcifer verrucosus*)	–34%	135.89	89.95
Asian water dragon (*Physignathus cocincinus*)	–35%	72.66	47.55
Common wonder gecko (*Teratoscincus scincus*)	–36%	62.72	40.00
Plumed basilisk (*Basiliscus plumifrons*)	–41%	118.47	70.00
Palm gecko (*Gecko vittatus*)	–42%	31.33	18.10
Bibron's gecko (*Chondrodactylus bibronii*)	–43%	17.39	9.95
Fat-tail gecko (*Hemitheconyx caudicinctus*)	–50%	95.24	41.11
Savannah monitor (*Varanus exanthematicus*)	–50%	87.10	43.43
Yemen chameleon (*Chamaeleo calyptratus*)	–52%	83.63	40.38
Moorish gecko (*Tarentola mauritanica*)	–52%	16.70	7.95
Common basilisk (*Basiliscus basiliscus*)	–56%	69.69	30.49
Brown basilisk (*Basiliscus vittatus*)	–66%	59.23	19.95
Green iguana (*Iguana iguana*)	–69%	116.38	50.00

price in real terms (Table 3). Whereas the prices of all aquatic turtles rose between 1992–3 and 2004–5, those for the two widely kept tortoises fell (Table 4). Overall, the mean percentage price change for chelonians was an increase of 21%.

Most amphibians showed a relative increase in price between 1992–3 and 2004–5 (Table 5). Although the trade in amphibians focuses almost entirely on wild-type forms, the mean percentage price change of +37% was higher than that observed in wild-type lizards and snakes.

Table 4. The percentage price change in normal-phase chelonian prices from 1993 to 2005 incorporating inflation.

Species	Percentage price change 1993–2005	Average price 1993 (£)	Average price 2005 (£)
Red eared slider (*Trachemys scripta*)	754%	6.68	57.00
Eastern box turtle (*Terrapene carolina*)	402%	48.78	245.00
Alligator snapping turtle (*Macrochelys temminckii*)	311%	37.84	155.58
Florida soft shell (*Apalone ferox*)	187%	22.62	64.99
Common snapping turtle (*Chelydra serpentina*)	150%	17.35	43.33
Eastern river cooter (*Pseudemys concinna*)	81%	11.08	20.00
African helmeted turtle (*Pelomedusa subrufa*)	47%	34.08	50.00
Spur-thighed tortoise (*Testudo graeca*)	–29%	243.91	172.10
Hermann's tortoise (*Testudo hermanni*)	–42%	313.60	181.40

In 1992–3, 35% of traded species were listed by CITES (Table 6), a percentage that had decreased to 30% in 2009. However, the percentage of traded frog species listed by CITES increased from 11% in 1992–3 to 18% in 2004–5.

DISCUSSION

Although the number of traded species more than doubled between 1992–3 and 2004–5, less than a third of species were traded in both periods. This high level of turnover in traded species could jeopardize sustainable ranching projects undertaken by local communities in range states, as market volatility could preclude investment (Thomsen et al., 1992; Roe et al., 2002; Raghavan et al., 2008). For example, if sustainable ranching programmes are too productive they risk saturating the market, as occurred with Peruvian-ranched dendrobatid frogs (*Hyloxalus azureiventris)* in US markets (Schulte, pers. comm.). One way to ensure the success of sustainable ranching projects is to utilize land concessions leased by the government, an approach that has had some success in Peru. From concessions, a variety of species may be ranched, including amphibians, reptiles, invertebrates and orchids, thereby making such projects less vulnerable to market changes. This helps to ensure a stable income for the communities involved and makes the programme more robust in the long term (Schulte, pers. comm.).

The dynamics of the UK herpetofauna market are similar to those of the avicultural and freshwater ornamental fish markets. Thus, a high price may have various impacts on the captive population of a species whose trade is regulated. The animals traded in shops may be purchased for commercial breeding interests or breeding may be intensified and juveniles retained for use in future breeding projects (Robinson, 2001). This may have a negative impact on the species concerned, especially for species with a narrow captive gene pool, as intensive breeding may reduce reproductive fitness and increase mortality rates (Frankham, 2003). This may maintain the demand for wild-caught individuals, which can be perceived as fitter by some hobbyists. After a period of time, increased captive breeding satiates demand for these species and prices subsequently decrease. This appears to have been the case for *Acrantophis dumerili* and *Liasis olivaceus* (Table 2). An increase in demand often leads to an increase in price such that the species concerned then becomes captive bred at full capacity. In avicultural markets it has been noted that within a decade the supply tends to catch up with demand and prices then start to decrease (Robinson, 2001).

Legislation has helped create a scenario where the restriction in the trade of one species may lead to a shift in the trade to a similar species (Carpenter et al., 2004). This substitution may in turn lead to the over-exploitation of the substitute species, especially if the substitute is for a species that was formerly very popular. For instance, in 1992–3 *Trachemys scripta* was a primary traded species (Smart & Bride, 1993), but in retail surveys of 2005 only three individuals were encountered. Yet by 2004–5 turtles of the genus *Graptemys* had become the primary traded species within this group, whilst none had been encountered in the 1992 surveys conducted by Smart & Bride (1993).

Legislative measures, such as listing species on CITES, can also often lead to a percentage price increase. The regulation of trade in species may be beneficial to the conservation of species, but an increase in market price may make illegal trade in such species more enticing, or perhaps the endangered label increases demand. In avicultural markets, prices are higher for rare, CITES-listed species (Robinson, 2001). Indeed, the price increases for *Phelsuma* species and the chameleon *Calumma parsonii* (both CITES listed) suggest this trend might also hold true for herpetofauna markets (Table 3). In the latter case – and with the possible exception of *C. calyptratus* and *Furcifer pardalis* – most chameleons do not breed well in captivity (Bruins, 1999). Their CITES listing may be partly responsible for increased prices, because captive breeding cannot meet demand. The decrease in the proportion of trade in CITES-listed species (Table 6) may indicate an increased demand for new species where protective legislation is not yet in place.

All aquatic chelonians showed a large price increase, which is indicative of a demand that could not be met due to the imposition of trade restrictions. The highest increase

Table 5. The percentage price change in normal-phase amphibian prices from 1993 to 2005 incorporating inflation.

Species	Percentage price change 1993–2005	Average price 1993 (£)	Average price 2005 (£)
Tiger salamander (*Ambystoma tigrinum)*	187%	11.85	34.00
Bumble bee dart frog (*Dendrobates leucomelas)*	138%	20.91	49.71
Asian leaf frog (*Megophrys nasuta)*	137%	32.75	77.45
Oriental fire-bellied toad (*Bombina orientalis)*	132%	5.58	12.95
Spotted salamander *(Ambystoma maculatam)*	86%	11.08	20.65
Yellow-bellied toad (*Bombina variegata*)	79%	5.58	10.00
Phantasmal poison frog (*Epipedobates tricolor)*	63%	20.91	34.15
Spanish ribbed newt (*Pleurodeles waltl)*	60%	11.85	19.00
African bullfrog (*Pyxicephalus adspersa)*	59%	33.26	53.02
American tree frog (*Hyla cinerea)*	55%	7.15	11.10
European tree frog (*Hyla arborea)*	51%	9.03	13.60
Fire salamander (*Salamandra salamandra)*	36%	18.31	24.96
Cane toad (*Bufo marinus)*	35%	19.85	26.76
Asian bullfrog (*Kaloula pulchra)*	22%	8.36	10.16
Tomato frog (*Dyscophus guineti)*	22%	19.16	23.28
Golden mantella (*Mantella aurantiaca)*	17%	29.78	34.97
Fire-bellied toad (*Bombina bombina)*	17%	10.45	12.23
Axolotl (*Ambystoma mexicanum)*	12%	18.82	21.15
Green mantella (*Mantella viridis)*	3%	24.39	24.99
White's tree frog (*Litoria caurelia)*	0%	21.51	21.56
Southern toad (*Bufo terrestris)*	0%	7.67	7.67
Green dart frog (*Dendrobates auratus*)	-9%	46.23	42.28
Grey tree frog (*Hyla versicolor)*	-9%	13.24	12.00
Ornate horned frog (*Ceratophrys ornata)*	–12%	35.88	31.74
Red eyed tree frog (*Agalychnis callidryas)*	–22%	53.66	42.04
Green toad (*Bufo viridus)*	–24%	11.69	8.85
Marbled salamander (*Ambystoma opacum)*	–28%	23.00	16.50
Budgett's frog (*Lepidobatrachus laevis)*	–32%	55.68	38.16
Water toad (*Caudiverbera caudiverbera)*	–32%	48.78	33.00

was for *T. scripta*, which can no longer be imported into the EU (Defra, 2007). Interestingly, however, percentage price decreases were noted for terrestrial tortoises, despite the EU having banned the commercial trade in wild-caught Mediterranean tortoise species in 1984 (RSPCA, 2001), which increased the popularity of tortoises alongside that of other reptiles (Pendry & Allan, 2002). Here the price reduction appears to have resulted from a highly successful response to the incentive to breed tortoises.

The percentage price of naturally coloured and patterned snakes and lizards was found to have increased only slightly between the two surveys, and this seems to have been due to the fact that many snake and lizard species are well established in captivity and are being bred in sufficiently large numbers to allow demand to be met by supply. Of particular interest is the considerable expansion in the availability of colour and pattern morphs that command particularly high prices. The highest relative price changes were observed for the colour and pattern morphs of pythons, *Broghammerus reticulatus* (+1004%) and *P. regius* (+938%), on sale for as much as £12,500, whereas the price of "wild" colour and pattern phases decreased by 10% and 30%, respectively. The popularity of colour and pattern morphs may be detrimental to sustainable use programmes, because the most highly priced individuals are seldom bred in range states. This is especially true of species such as *B. reticulatus*, which have, at least in some parts of their range, been shown to withstand high levels of harvesting (Shine et al., 1999).

The majority of amphibians showed a percentage price increase between 1992–3 and 2004–5. This might have resulted from an increase in popularity over the study period being met by the trade in wild-caught specimens, coupled with the high overhead costs of breeding amphibians on a commercially viable scale, an industry still in its infancy for many species. An increasing proportion

Table 6. The percentage of species listed on CITES Appendix I or II in each of the time periods examined.

Group	Percentage of species listed on CITES appendices I or II 1992–3	2004–5
Snake	47	41
Lizard	37	31
Turtle	33	29
Crocodile	100	100
Frog	11	18
Salamander	13	4
Caecilian	0	0
Average	35	30

of amphibians imported into the UK are of captive bred origin (Companion Animal Welfare Council, 2003), and the price increase could be linked to the transfer to the hobbyist of the overhead costs of breeding amphibians on a commercial scale, a trend already documented in reptiles (Pendry & Allan, 2002). *Hyla cinerea*, *H. arborea* and *Pyxicephalus adspersa* were often collected from the wild, and these three species showed the smallest price increases. This supports the suggestion that the overhead incurred is being passed on to the hobbyist. The link between the emergence of *Batrachochytrium dendrobatidis* and the international amphibian trade is well established (Fisher & Garner, 2007), and the import and trade of amphibians infected with *B. dendrobatidis* into the UK has the potential to harm native amphibians. Screening and/or precautionary treatment of all imported frogs to prevent the transmission of this pathogen from traded to native amphibians requires implementation. Notably, amphibians were the only group where the proportion of CITES listed species traded between 1992–3 and 2004–5 increased. This could be due to the increase in the number of dendrobatid frogs offered for sale.

Wildlife trade does not benefit the countries of origin as much as it could, and it seems that there is an inadequate benefits return to range states. The United Kingdom has ratified the Convention on Biological Diversity, which recognizes the equitable sharing of benefits derived from genetic resources. This inadequate benefit sharing needs to be addressed if a successful strategy for the conservation of a species is to provide a use value to local communities. Significant use values in range states are currently lacking for many popularly traded species, whilst some captive-bred species, particularly certain colour and pattern morphs, are generating very high income outside range states. The way the market operates needs to be thoroughly monitored if the required conservation benefits are to accrue to the countries of origin and to the human and wildlife communities therein.

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