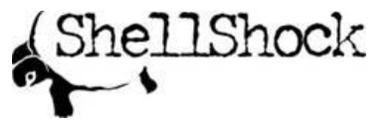


TCF – 0096

Siebenrockiella leytensis over time - are populations stable?

FINAL REPORT



Project Partners



By
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Puerto Princesa City, Palawan, Philippines
October 2009

TCF – 0096

FINAL REPORT (October 2009)

COUNTRY: PHILIPPINES

PROJECT TITLE: *SIEBENROCKIELLA LEYTENSIS* OVER TIME –
ARE POPULATIONS STABLE? (TCF-0096)

PROJECT DURATION: November 2007 – April 2009 (with extension until Oct. 2009)

PROJECT SITE: Palawan, Philippines

PHILIPPINE PROJECT COOPERATORS:

Department of Environment and Natural Resources (DENR)
Protected Areas and Wildlife Bureau (PAWB)
Palawan Wildlife Rescue and Conservation Center (PWRCC)
Palawan Council for Sustainable Development (PCSD)
Municipal Government of Narra, Palawan, Philippines
Concerned agencies and authorities

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SIEBENROCKIELLA LEYTENSIS OVER TIME - ARE POPULATIONS STABLE?

FINAL REPORT – October 2009

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Background and Research / Conservation Rationale

Until recently, herpetologists believed that the Philippine Forest Turtle – known from only two individuals on which Taylor (1920) had based its description and that were labeled with origin in Leyte – might as well be extinct. Only when Timmerman and Auth (1988) reported on a specimen from Palawan the search for the species started again. It took more than another decade until its existence in Palawan was proven and documented through various studies (Diesmos et al., 2004b; Fidenci, 2004; Gavino and Schoppe, 2004; Lopez and Schoppe, 2004; Widmann et al., 2004; Diesmos et al., 2005; Acosta, 2006, Schoppe, 2006; Diesmos et al., 2008). Finally in 2004, Diesmos et al. (2004a) describe the rediscovery and provide evidence for the species being endemic to the Palawan faunal region. Only then the count-down for the species seems to have started. Its rediscovery had triggered a high demand for the international pet market. Just months after the rediscovery was published the species was available on the international pet markets of Europe, Japan and the USA. Since then, prices have steadily increased and are currently at 2,000 Euro per individual in Europe (internet survey).

Recent surveys have shown that the species had been locally common and has always been consumed in Palawan (Acosta, 2006; Matillano, 2008; Schoppe, 2008; Schoppe and Matillano, 2008; Schoppe and Cervancia, 2009). Unfortunately, the species is facing a combination of threats nowadays. In addition to local consumption, habitat destruction and exploitation for the international pet trade are threatening the survival of the species. Though some first data on population size estimates are available from short-term studies (Acosta, 2006; Schoppe and Matillano, 2008; Schoppe et al., in prep.) long term studies are needed to show the population size and composition over time. In view of the urgent need to qualify and quantify the population status and trends, the present study intends to conduct long term population studies in selected sites in Palawan.

Methodology

Three sites in Northern Palawan were selected for the study. Two in areas where previous short-term surveys had been conducted and which characterized the sites as heavily exploited and seemingly intact, respectively (Schoppe and Matillano, 2008; Schoppe et al., in prep.). A third site was established in a geographic area that – according to confiscation and turn-over records - is source of most individuals in international trade. A brief description of the three sites is provided in Table 1.

Table 1: Some physical habitat characteristics of survey sites. (Data are based on the dry season 2007).

	Site I	Site II	Site III
Nature of water body under study	Perennial stream	Perennial stream with temporary tributary	Perennial stream with temporary tributary
Mean width (m) of stream habitat	6.2	14.5	4.0
Mean water depth (m)	0.7	4.9	0.3
Min.-max. (mean) water temperature (°C)	18.0-26.0 (23.3)	25.0-28.0 (26.5)	25.0-27.0 (25.7)
Mean current speed (m/s)	0.03	0.03	0.11
Mean canopy cover (%)	80.0	11.7	14.3
Min.-max. (mean) air temperature (°C)	19.0-26.0 (22.2)	20.0-26.0 (23.5)	23.0-27.0 (24.7)
Stream and bank substrate	Sandy-muddy	Sandy-muddy	Mainly sandy-muddy
Shoreline vegetation	Secondary lowland forest with some old growth but also <i>Pandanus</i> , palms, grasses and rice fields.	Few remaining trees, mainly crops (cashew, rice), bamboo and sedges.	Few emergent trees, mainly rice fields, coconut plantation, palms, <i>Pandanus</i> , rattan, bamboo.

Unlike in previous short-term studies where populations of *S. leytensis* were considered closed and the mark-recapture method after Schnabel was applied (Acosta, 2006; Schoppe and Matillano, 2008), the present study considers the populations open and after mark-recapture surveys over five years (2008-2012) data will be analyzed after Peterson, Seber (1973), and Schumacher & Eschmeyer (1943) (see also Krebs, 1998) and results of the three methods will be compared. Present funding (TCF-0096) covers only the first two samplings (2008 and 2009).

Siebenrockiella leytensis is collected from visual encounter surveys, pit fall traps and baited funnel traps (Plate 1). Individuals are marked through permanent notches of the marginals (Plate 1). Hatchlings and very small young are marked through toe clipping. All animals are measured and weighed following standard measurements before release to place of capture. The composition of the populations will be analyzed in terms of size and age structure, life history stages and sex ratio. The number of caught animals per year will also be compared. If other turtle species than *S. leytensis* are collected they will be measured and marked as well.



Plate 1: Preparation of baits (left), marking (center), and measuring (center) during field work.

Accomplishments during the Funding Period (2008 – 2009)

The first sampling period had been scheduled for December 2007 to February 2008, but bad weather hampered the conduct of the study and the first survey of the three sites could only be conducted between February and March 2008.

At the first site (I) a total of 79 *S. leytensis* one of which was found dead was caught, measured and released (Tab. 2). Once the results from the first survey site were encoded and supplies replenished the second site (II) was surveyed. At Site II, 21 *S. leytensis* were collected. At the third site only 10 *S. leytensis* were trapped. No data are available for 2009 due to two major reasons: 1) the extension of the research permit was delayed and the research was only cleared on 26 June 2009, which forced us to reschedule the fieldwork to the rainy season (July/August); and 2) strong water currents, heavy rains, and flash floods caused by consecutive typhoons during the past months (July to October) did not permit the sampling. The team tried first in late July/early August at Site I when traps and camp were washed out by a typhoon. Later in late September/early October we tried to survey Site II and III but had to realize that habitat conditions are completely different during dry and wet season, hence even if we would have been able to sample, data would not be comparable. Hence no comparable data are available for the 2009 sampling period.

The population sizes can only be estimated once mark-recapture data from the upcoming surveys (2010-2012) are available. As of now data can only be compared with the number of individuals that were collected after two weeks in 2007 short-term population surveys (Schoppe and Matillano, 2008; Schoppe et al., in prep.). In 2007, 90, 38 and 22 *S. leytensis* were caught in site I, II and III, respectively. For all three sites, the number of individuals caught was higher in 2007 than in 2008. It is too early to determine whether this represents a declining trend related to ongoing exploitation and or habitat destruction.

Table 2: Number of captured *S. leytensis* during different sampling periods.

No. of individuals	Site I	Site II	Site III
2007	90	38	22
2008	79	21	10
2009	No data	No data	No data

A first comparison of some of the morphological data collected in 2008 shows that the largest and heaviest individuals were encountered in Site I, which is the best preserved site among the three (Tab. 3). The least number and the smallest mean size and weight were encountered in Site III.

Table 3: Mean \pm standard deviation and range of median carapace length and body weight of *S. leytensis* captured along three sites in 2008.

	Median carapace length (mm)	Body weight (g)
Site I	188.0 \pm 53.0 (41.0-297.0)	1116.1 \pm 716.0 (12.0-3440.0)
Site II	177.3 \pm 42.7 (109.0-258.0)	956.2 \pm 627.2 (250.0-2280.0)
Site III	122.4 \pm 71.3 (44.7-255.0)	516.1 \pm 713.3 (15.0-2150.0)

Aside from *S. leytensis* the Southeast Asian Box Turtle *Cuora amboinensis* and the Asian Leaf Turtle *Cycllemys dentata* were encountered in most of the sites. At Site I, six *C. dentata* but no *C. amboinensis* were caught in 2008. At the second site, two *C. dentata* and six *C. amboinensis* were collected, measured and released. At the third site (III) 17 *C. dentata*, and 11 *C. amboinensis* were captured.

Water parameter taken in 2008 such as width, depth, and temperature of stream were in range with measurements that had been taken in previous years (Schoppe et al., in prep.; see also Methodology) during the same season (Tab. 4). Current speed however was much faster.

Table 4: Water parameters of sites taken in 2008.

	Mean Site I	Mean Site II	Mean Site III
Mean width of stream (m)	7.5	14.3	4.3
Mean water depth (m)	0.7	2.4	0.6
Mean water current speed (m/s)	0.34	0.32	0.15
Mean water temperature (°C)	25.8	27.3	26.7

We intend to look into more water parameters especially pH, total hardness and alkalinity in the future since these might be important properties for the species.

Issues/Problems encountered/Solutions

Global climate change and resulting unpredictable weather conditions hampered the project, caused delays in fieldwork, damage and losses of equipment, and threatened team.

In 2009, the renewal of the research permit took much longer than expected. We were forced to delay the fieldwork by six months. We tried to pursue during the rainy season but got assumptions confirmed that sampling should be done always during the same

season and only during dry season. Our current research permit for the population size is now valid until 2013 hence we will be back to the dry season sampling schedule in 2010.

Our budget was significantly affected by the considerable change in exchange rate between proposal submission (1USD=PHP57.00) and release of funds (1USD=46.43). We addressed this problem in the proposal for extension (TCF 0166) by inclusion of 10% contingency.

Acknowledgements

First and foremost we are thankful for the grant awarded by the European Association of Zoos & Aquaria Shellshock Campaign (“Shellshock”), on behalf of the Turtle Conservation Fund (“TCF”), an informal consortium consisting of Shellshock, the Chelonian Research Foundation (“CRF”), Conservation International (“CI”), and the participants in the IUCN Tortoise and Freshwater Turtle Specialist Group (TFTSG), and the IUCN Turtle Survival Alliance (TSA). The grant was administered by the North of England Zoological Society, Chester Zoo; special thanks are due to Mr. Kevin Buley the Shellshock Project Director, Dr. Hugh Quinn the TCF Technical Director, and Dr. Anders G.J. Rhodin, Co-Chair of the Turtle Conservation Fund.

Thanks to the principal sponsors and partner donors of the Philippine Cockatoo Conservation Program: Loro Parque Fundacion (LPF) Zoological Society for the Conservation of Species and Populations (ZGAP), North of England Zoological Society (NEZS) Chester Zoological Gardens, Conservation des Espèces et des Populations Animales (CEPA), and ZooParc de Beauval.

Thanks to our local partners, especially Dr. Theresa Mundita S. Lim the Director of DENR-PAWB with whom we signed a memorandum of agreement for the conservation of freshwater turtles in the Philippines; and OIC Director Romeo Dorado of PCSDS and the Provincial Government of Palawan who support the project and issued the necessary permits. We appreciate the efforts and support of the municipal and barangay officials and communities of Puerto Princesa City, Roxas, and Taytay.

Thanks to KFI, especially President Senator Juan Miguel Zubiri and Vice President Peter Widmann, and staff.

The work would not have been possible without field researcher Diverlie Acosta and her assistants Geoffrey Aludia, Ronelito Esuma, Marites Peneyra, Miguelito Cervancia, Gynald Acierto, Mervyn Loreto, and Arnold Calago and family – thanks to all of you. And last but not least, to those who took care of the turtles and operations at KIEBC when Diverlie was out: Siegfried Diaz, Ivy Regodos, Ariel Dangis, Charlito Basio, and Mario Batac.

Literature cited

Acosta, D.D. 2006. Population structure of the Philippine Forest Turtle *Siebenrockiella P. leytensis* (Taylor, 1920) in Brgy. Dumarao, Roxas, Palawan, Philippines. Oral presentation, 15th WCSP Annual Philippine Biodiversity Symposium, Legend Hotel Palawan, Puerto Princesa City, Palawan, April 4-8, 2006.

Diesmos, A.C., G.V.A Gee, M.L. Diesmos, R.M. Brown, P.J. Widmann and J.C Dimalibot 2004a. Rediscovery of the Philippine Forest Turtle, *Heosemys leytensis* (Chelonia; Bataguridae) from Palawan Island, Philippines. Asiatic Herpetological Research, 10: 22-27.

- Diesmos, A.C., R.V. Sison, M.dG. Pedregosa, and Ma.J.C. Cenisa, 2004b. The Conservation Status of *Heosemys leytensis* Taylor, 1920. A project report, Manila, Philippines, 31 pp.
- Diesmos, A. C., J. F. Parham, B. L. Stuart, and R. M. Brown. 2005. The phylogenetic position of the recently rediscovered Philippine forest turtle (Bataguridae: *Heosemys leytensis*). Proceedings of the California Academy of Sciences, 56(3): 31-41.
- Diesmos, A.C., Brown, R.M., Alcalá, A.C. and R.V. Sison, 2008. Status and distribution of non-marine turtles of the Philippines. Chelonian Conservation and Biology, 7(2): 157-177.
- Fidenci, P., 2004. Discovery of a wild population of the critically endangered Philippine Forest Turtle *Heosemys leytensis*, in Palawan Philippines. Turtle and Tortoise Newsletter, 8: 2-3.
- Gavino, C.M. and S. Schoppe, 2004. First information on the trade of freshwater turtles in Palawan. Agham Mindanaw, Ateneo de Davao Journal of Science and Technology, 2: 53-60.
- Krebs C.J. 1998. Ecological Methodology. Second edition. Addison Wesley Longman, Inc., 620 pp.
- Lopez, Ma.F.M. and S. Schoppe, 2004. Morphometry of four species of non-marine turtles from Palawan, Philippines with special reference to sexual dimorphism. Agham Mindanaw, Ateneo de Davao Journal of Science and Technology, 2: 41-51.
- Matillano, J. 2008. Status and dynamics of trade of *Heosemys leytensis*. CEPF Small Grant Final Project Completion Report, 12 pp.
- Schoppe, S., 2008. Erste Informationen zum Wachstum der Philippinischen Waldschildkröte (*Siebenrockiella leytensis*). Marginata, 18, 5(2): 52-57.
- Schoppe, S., 2006. Notes on the biology of the Philippine Forest Turtle *Siebenrockiella leytensis* (Taylor, 1920). Poster presentation, 15th WCSP Annual Philippine Biodiversity Symposium, Legend Hotel Palawan, Puerto Princesa City, Palawan, April 4-8, 2006.
- Schoppe, S. and M. Cervancia, 2009. Herps of Pagdanan Range and Dumarán, Northern Palawan, Philippines. Hamadryad, 34(1): 95-106.
- Schoppe, S. and J. Matillano, 2008. Conservation status of the critically endangered Philippine Forest Turtle *Siebenrockiella leytensis* (Taylor, 1920) in Palawan. 17th WCSP Annual Philippine Biodiversity Symposium, Leyte State University, Baybay, Leyte, Philippines, 13-16 April 2008.
- Schoppe, S., J. Matillano, M. Cervancia and D. Acosta, *in prep.* Conservation needs of the critically endangered Philippine Forest Turtle *Siebenrockiella leytensis* (Taylor, 1920) in Palawan. Submitted to *Chelonian Conservation Biology* on June 7, 2009.
- Schumacher, F.X., and Eschmeyer, R.W. 1943. The estimation of fish populations in lakes and ponds. J. Tenn. Acad. Sci. 18: 228-249.
- Seber, G.A.F. 1973. The estimation of animal abundance and related parameters. Griffin, London.
- Taylor, E. H. 1920. Philippine turtles. Philippine Journal of Science 16:111–144.
- Timmerman, W.W., and D.L. Auth 1998. Geographic distribution: *Heosemys leytensis*. Herpetological Review 19: 21.
- Widmann, P., K. Lachenmaier, I.L. Widmann, S. Schoppe, R.M. Dumalag, J.D. Matillano, D.F. Villafuerte, S.H. Diaz and M. Cervancia, 2004.

Wirbeltiergemeinschaften in Rotsteißkakadu-Habitaten in Nord-Palawan. ZGAP
Mitteilungen 20(2): 3-7.

Photo documentation (all pictures ©KFI)



Plate 2: Locals near sampling Site I got attracted by the work of the team and readily shared their local knowledge on the species (left). A rice field adjacent to Site I was regularly inspected but only yielded once one *S. leytensis* in 2008 (right).



Plate 3: A temperature data logger was left in the water for the entire duration of each fieldwork in 2008 (left). Taking notes on recaptured individuals during night survey (right)



Plate 4: A visual encounter in the middle of the stream is a great challenge for the researcher (left). Some forest fruits that serve as food of *S. leytensis* were collected and germinated for later identification (right).



Plate 5: Sand quarrying is one of the causes of habitat destruction in Site II (left). At the same site, the researcher retrieved part of a *S. leytensis* shell near a house, whose owners probably discarded the shell after eating the flesh (right).



Plate 6: In Site III, Diverlie witnesses the slaughtering of a Monitor lizard, but turtles are eaten here too (left). In all three sites, water buffaloes bath in the stream occupied by *S. leytensis* (right).



Plate 7: Water level was considerably higher during the 2009 survey, making trapping almost impossible due to strong current that washed out traps and researchers (left). In 2009, we only collected 7 individuals (all recaptures) before we pulled out when hit by a typhoon (right).



Plate 8: Surveys at Site II in October 2009 did not yield any *S. leytensis*, and habitat conditions during rainy season forced us to pull out (left). In a dry moment we conducted interviews with locals instead (right).



Plate 9: Surveys of a stream close to Site II yielded one individual (left). Interviews in another site found two individuals held as pet (right).



Plate 10: This young boy has been keeping 2 juvenile *S. leytensis* for about one month by just feeding them with leftover food, especially rice (left). During a reconnaissance survey along a stream where the boy had collected his pets we found 2 individuals. Mud was knee-deep giving researchers are hard time (right).





Plate 11: During night surveys, Diverlie wishes to be an octopus with 8 hands to hold specimen, flashlight, caliper, clipboard, pencil etc. (left). A close view of the head and neck of a captured individual shows the unique and beautiful color pattern of juvenile *S. leytensis* (right).