Recent literature from Cambodia

This section summarizes recent scientific publications concerning Cambodian biodiversity and natural resources. The complete abstracts of most articles are freely available online (and can be found using Google Scholar or other internet search engines), but not necessarily the whole article. Corresponding authors may be willing to provide free reprints or electronic copies on request and their email addresses, where known, are included in the summaries below.

Documents that use the Digital Object Identifier (DOI) System can be opened via the website http://dx.doi.org (enter the full DOI code in the text box provided and click Go to find the document).

If you or your organisation have recently published a technical paper, report or conference abstract that you wish to be included in the next issue, please send an electronic copy, summary or web-link to: Editor.CJNH@gmail.com or Editor.CJNH@rupp.edu.kh

New species & taxonomic reviews

Assing, V. (2018) A revision of Palaearctic and Oriental *Pseudolathra* V. Two new species from Cambodia and Thailand, and additional records (Coleoptera: Staphylinidae: Paederinae). *Linzer biologische Beiträge*, **50**, 1005–1014.

The author describes two new species of beetles to science, including one from Cambodia: *Pseudolathra armigera* sp. nov. The first country records of three additional species in the same genus are also documented and a catalogue of *Pseudolathra* species in the East Palaearctic and Oriental regions is provided. Author: vassing.hann@t-online.de

Assing, V. (2019) A revision of Palaearctic and Oriental *Scymbalium* and *Micrillus* IV. The fauna of Cambodia (Coleoptera, Staphylinidae, Paederinae). *Linzer biologische Beiträge*, **51**, 21–31.

This paper describes three new species of beetles to science from Cambodia: *Micrillus rossianus* sp. nov., *M. variceps* sp. nov. and *M. bispinosus* sp. nov. Records of one species of *Scymbalium* and four additional species of *Micrillus* are also documented. Author: vassing.hann@t-online.de

Assing, V. (2019) Three new species of *Platyprosopus* from Thailand, Cambodia, and Sierra Leone, and additional records (Coleoptera, Staphylinidae, Staphylininae). *Linzer biologische Beiträge*, **51**, 707–715.

The author describes three new species of beetles to science, including one from Cambodia: *Platyprosopus rossii* sp. nov. Additional records of three species of *Platyprosopus* are also reported, primarily from Cambodia, including two new records for the country. Author: vassing.hann@t-online.de

Bayarsaikhan, U., Ko J., Kwon H.-W. & Bae Y.-S. (2020) A new species of the genus *Tatargina* (Lepidoptera, Erebidae, Arctiinae) from Cambodia. *Zootaxa*, **4731**, 589–594.

This paper describes a new species of moth to science from Cambodia (*Tatargina erythromelaena* sp. nov.) and re-describes another species (*T. picta*) previously recorded in the country. Illustrations of adults and male genitalia of species in Cambodia and Thailand are also provided. Author: baeys@inu.ac.kr

Choi J.B., Han G.Y., Park J. & Park J.K. (2020) A taxonomic study on the genus *Amphimenes* Bates (Coleoptera: Carabidae: Lebiinae) from Cambodia. *Journal of Asia-Pacific Biodiversity*, **13**, 24–28.

The authors present the first record of the ground beetle genus *Amphimenes* (represented by *A. rugulipennis*) in Cambodia and describe a new species of *Amphimenes* to science from the country (*A. wooshini* sp. nov.). Illustrations and an identification key are also provided. Author: entopark@knu.ac.kr

Khorngton, S., Souladeth, P. & Prajaksood, A. (2020) *Eriocaulon longibracteatum* (Eriocaulaceae), a new species from Thailand and Cambodia. *Kew Bulletin*. DOI 10.1007/S12225-020-9879-1

This paper describes a new species of herbaceous plant to science from Cambodia and Thailand. The new species qualifies as Endangered under red list criteria and is presently known only from three populations and three localities. Authors: amopra@kku.ac.th

Kim B.-Y., Won H., Phourin C., Lim C.-K., Shin J.-S., Kim Y.-S. & Cho S.-H. (2019) *Impatiens cardamomensis* (Balsaminaceae), a new species from Cambodia. *Korean Journal of Plant Taxonomists*, **49**, 319–323.

The authors describe a new plant species to science from the Cardamom Mountains in Cambodia. The new species is similar to *Impatiens noei* from Thailand in some respects, but is readily distinguished by its ovate to widely ovate leaves, shorter petioles, widely elliptic dorsal petals and smaller seeds. Author: dricetea1@gmail.com

Likhitrakarn, N., Golovatch, S.I., Thach, P., Chhuoy S., Ngor P.B., Srisonchai, R., Sutcharit, C. & Panha, S. (2020) Two new species of the millipede genus *Plusioglyphiulus* Silvestri, 1923 from Cambodia (Diplopoda, Spirostreptida). *ZooKeys*, **938**, 137–151.

This paper describes two new species of millipedes to science based on specimens collected in southern Cambodia: *Plusioglyphiulus biserratus* sp. nov. and *P. khmer* sp. nov. A key to all four species of *Plusioglyphiulus* currently known to occur in Cambodia is also presented. Author: somsak.pan@chula.ac.th

Nuraliev, M.S., Yudina, S.V., Truong B.V., Do T.X., Luu H.T., Kuznetsov, A.N. & Kuznetsova, S.P. (2020) A revision of the family Thismiaceae (Dioscoreales) in Cambodia, Laos and Vietnam. *Phytotaxa*. DOI 10.11646/phytotaxa.441.3.1

Paper not seen.

Sanoamuang, L. & Watiroyram, S. (2020) *Phyllodiaptomus* (*Phyllodiaptomus*) *roietensis*, a new diaptomid copepod (Copepoda, Calanoida) from temporary waters in Thailand and Cambodia, with a key to the species. *Zookeys*, **911**, 1–20.

The authors describe a new species of copepod to science from specimens collected in Kampong Thom Province in Cambodia and two provinces in northeastern Thailand. An updated key to the species of the genus *Phyllodiaptomus* is also provided. Author: santi.watiroyram@npu.ac.th

Spitsyn, V.M. (2020) *Cyana pseudojavanica* sp. nov. from Thailand and Cambodia (Lepidoptera: Erebidae: Arctiinae). *Ecologica Montenegrina*, **31**, 6–9.

The author describes a new species of moth to science from Cambodia and Thailand. The new species is morphologically similar to *Cyana javanica* and was previously misidentified as this taxon. Author: spitsyn.v.m.91993@yandex.ru

Stuart, B.L., Som H.E., Neang T., Huy D.H., Duong T.T.L., Vinh Q.D., Potter K. & Rowley, J.J.L. (2020) Integrative taxonomic analysis reveals a new species of *Leptobrachium* (Anura: Megophryidae) from north-eastern Cambodia and central Vietnam. *Journal of Natural History*. DOI 10.1080/00222933.2020.1756498

The authors describe a new species of amphibian to science from northeastern Cambodia and the central highlands of Vietnam: *Leptobrachium lunatum* sp. nov. Their integrated analyses also indicate that three species of red-eyed *Leptobrachium* exist in southern Indochina. Author: bryan.stuart@naturalsciences.org

Zettel, H. & Pangantihon, C.V. (2020) A new species of the *Timasius livens* species group (Hemiptera: Heteroptera: Hebridae) from Cambodia and Vietnam. *Far Eastern Entomologist*, **405**, 8–14.

This paper describes a new hemipteran species to science based on specimens collected in Cambodia and Vietnam: *Timasius alveus* sp. nov. An updated diagnosis for the *T. livens* species group and a preliminary key to its species is also provided. Author: herbert.zettel@nhm-wien.ac.at

Field guides

Cambodia Bird Guide Association (2019) *Birds of Cambodia*. Lynx Edicions, Barcelona, Spain.

This 288-page field guide is an comprehensive introduction to the birds of Cambodia and includes almost 1,400 colour illustrations and text accounts for 629 species. The illustrations include all of these species and distinctive subspecies and where appropriate, renderings of birds in flight, males and females, juveniles and non-breeding plumages. Range maps are provided for all species other than vagrants. Text accounts are given for each species which detail their status, habitats and behaviour, age, sex and geographical variation and vocalisations. QR codes linked to audio-visual material are also provided for each species.

Nuñez, G.B., Cunningham, A., Fils, E.M.B., Frick, W., Islam, M.N., Jolliffe, T., Kading, R., Kepel, A., Kingston, T., Leopardi, S., Medellín, R., Mendenhall, I., Parsons, S., Racey, P., Russo, D., Shapiro, J.T., Vicente-Santos, A., Víquez-R, L. & Vu D.T. (2020) *IUCN SSC Bat Specialist Group (BSG) Recommended Strategy for Researchers to Reduce the Risk of Transmission of SARS-CoV-2 from Humans to Bats, MAP: Minimize, Assess, Protect*. Living Document Version 1.0, IUCN Species Survival Commission Bat Specialist Group. Https://www.iucnbsg.org/publications.html [Accessed 20 June 2020].

In April 2020, the bat specialist group of the IUCN SSC recommended the suspension of all field work involving interactions with bats while it convened a global panel of experts to consider the risk of SARS-CoV-2 transmission. The opinion of the panel is that there is a credible risk of human-to-bat transmission of SARS-CoV-2, but this risk can be reduced using appropriate mitigation strategies. This document provides guidance to this end and was developed primarily for researchers. As understanding of SARS-CoV-2 is changing rapidly, updates to the guidance document are anticipated.

Biodiversity inventories

Gray, T.N.E, Grosu, R. & Chum S. (2019) Unexpected discovery in the Cardamom Rainforest Landscape, Cambodia: a white-eared night heron *Gorsachius magnificus* in Botum Sakor National Park. *BirdingASIA*, **32**, 12–14.

The white-eared night heron is a little-known nocturnal heron hitherto documented in southern China, northern Vietnam and eastern India. The authors document a significant range extension for the species based on camera trap images taken in Botum Sakor National Park in March, 2017. Author: gray@wildlifealliance.org

Long K.D. & Try Y. (2018) A survey on parasitoids of rice pest insects in Sisophon, northwest Cambodia. *Academia Journal of Biology*, **40**, 143–146.

The authors document parasitoids of rice insect pests recorded during a short survey in the Sisophon area of Banteay Meanchey Province. These included six larval braconid parasitoids, two pupal ichneumonid species and one egg scelionid parasitoid, all of which are new records for Cambodia. Author: khuatdanglong@gmail.com

Species ecology & status

Brownell Jr., R.L., Reeves, R.R., Read, A.J., Smith, B.D., Thomas, P.O., Ralls, K., Amano, M., Berggren, P., Aung Myo Chit, Collins, T., Currey, R., Dolar, M.L.L., Genov, T., Hobbs, R.C., Kreb, D., Marsh, H., Zhigang M., Perrin, W.F., Phay S., Rojas-Bracho, L., Ryan, G.E., Shelden, K.E.W., Slooten, E., Taylor, B.L., Vidal, O., Ding W., Whitty, T.S. & Wang J.Y. (2019) Bycatch in gillnet fisheries threatens Critically Endangered small cetaceans and other aquatic megafauna. *Endangered Species Research*, **40**, 285–296.

The conservation status of small cetaceans has worsened since the 1980s and 13 species, subspecies or populations of these are currently listed as Critically Endangered on the IUCN Red List. The authors review information on their status and current threats and consider conservation actions needed to save them. Their major finding is that bycatch in gillnets remains the greatest threat and that very little progress has been made to reduce this over the last 30 years. They conclude that solving this challenge will require development of efficient and inexpensive fishing gears to replace gillnets without jeopardizing fishing livelihoods. Good fishery governance and direct involvement of fishing communities will be also essential to conserve the most threatened small cetaceans. Author: robert.brownell@noaa.gov

Chhin S., Souter, N.J., Ngoprasert, D., Browne, S.J. & Savini, T. (2020) Spatial interactions between sympatric partridges in the Cardamom Mountains, Southwest Cambodia. *Raffles Bulletin of Zoology*, **68**, 308–318.

Identifying the causes of variation in the habitat use and home range of species is important for planning their conservation. The authors evaluated spatial interactions within and between the chestnut-headed partridge *Arborophila cambodiana* and scaly-breasted partridge *Tropicoperdix chloropus* in evergreen forests in the Cardamom Mountains. Their results indicate that while the two species seem to prefer similar habitats, *A. cambodiana* has a slightly larger home range and is restricted to steeper slopes, whereas *T. chloropus* tends to use areas closer to water sources and has a comparatively smaller home range. Their analyses also suggest that small interspecific and minimal intraspecific overlaps occur in their home ranges, with *A. cambodiana* having a slightly greater overlap in intraspecific home range than *T. chloropus*. Author: sopheachhin@gmail.com

Davis, E.O., Gibson, M., Lim T. & Glikman, J.A. (2020) Bear bile use at the intersection of maternal health in Cambodia. *Journal of Ethnobiology and Ethnomedicine*. DOI 10.1186/s13002-020-00380-6

Consumption of bear gallbladders and bear bile is a persistent threat to bear populations in Southeast Asia. The authors interviewed 122 women seeking treatment for post-partum and uterine ailments in seven provinces of Cambodia as part of a larger effort to understand the consumption of bear parts in the country. Their results suggest that the continued use of bear bile and bear gallbladder for these purposes seems to be facilitated by a desire for support from kin networks. They recommend that efforts to reduce consumption should focus on encouraging older kin to change their means of support to western/biomedical and by extension non-wildlife alternatives. Author: edavis@sandiegozoo.org

Gray, T.N.E, Grainger, M.J. & Grosu, R. (2019) Conservation decision-making under uncertainty: identifying when to reintroduce tiger *Panthera tigris* to Cambodia. *Conservation Science and Practice*. DOI 10.1111/csp2.187

Presenting the results of biological monitoring in terms of the probability of a hypothesis being true may have greater utility for decision-making than traditional statistical approaches. The authors adopt this approach in assessing the suitability of the Cardamom Rainforest Landscape for reintroduction of tigers *Panthera tigris*. Their results suggest there is currently a low probability that the core area of the landscape supports sufficient prey to sustain a population of 25 adult tigers and that this in turn means significant prey recovery will be required before the species can be reintroduced there. Author: romicagrosu@gmail.com

Ryan, G.E., Nicholson, E., Eames, J.C., Gray, T.N.E., Loveridge, R., Mahood, S.P., Sum P. & McCarthy, M.A. (2019) Simultaneous-count models to estimate abundance from counts of unmarked individuals with imperfect detection. *Conservation Biology*, **33**, 697–708.

The authors describe a new method to estimate population abundance from simultaneous counts of unmarked individuals at multiple sites. They apply the method to data for three Critically Endangered vulture species in Cambodia to demonstrate its applicability and provide the first abundance estimates for these species. Their method complements existing approaches for estimating the abundance of unmarked individuals and is the first method designed specifically for simultaneous counts. Author: gezryan@gmail.com

Thomas, P.O., Gulland, F.M.D., Reeves, R.R., Kreb, D., Ding W., Smith, B., Malik, M.I., Ryan, G.E. & Phay S. (2019) Electro-

fishing as a potential threat to freshwater cetaceans. *Endangered Species Research*, **39**, 207–220.

Illegal use of electrofishing affects freshwater fish populations in many parts of the world, and has been cited as a cause of mortality for endangered freshwater cetaceans in China and Southeast Asia, although the extent of this threat is unclear. The authors review the evidence that electrofishing is a serious threat to freshwater cetaceans. They conclude that while mortality from electrofishing seems to be uncommon for freshwater cetaceans, given the present uncertainties and many other threats faced by the small populations of these species, high priority should be given to enforcing electrofishing bans in the freshwater habitat of dolphins and finless porpoises. Author: pthomas@mmc.gov

Tubbs, S.E., Keen, E., Jones, A.L. & Thap R. (2020) On the distribution, behaviour and seasonal variation of Irrawaddy dolphins (*Orcaella brevirostris*) in the Kep Archipelago, Cambodia. *Raffles Bulletin of Zoology*, **68**, 137–149.

While much research has been undertaken on freshwater populations of the Endangered Irrawaddy dolphin, marine populations of the species have received much less attention. The authors combined year-long land and boat surveys to identify seasonal habitats for these in the Kep Archipelago and generate information on their behavioural ecology. Their results indicate that Irrawaddy dolphins and juveniles of the species are present in all seasons, which suggests the region is an important nursing ground. Foraging was the most commonly observed behaviour and significant associations were found between certain behavioural states and events, group sizes and seasons, group sizes and juvenile presence, and swimming styles and juvenile presence. Author: sarahtubbs123@gmail.com

Coasts, wetlands & aquatic resources

Bahadur, K.K.C., Elliott, V., Seng R., Pomeroy, R.S., Schenkels, J. & Fraser, E.D.G. (2020) Evaluating community fishery management using fishers' perceptions in the Tonle Sap lake of Cambodia. *Environmental Development*, **33**, 100503.

There is emerging consensus that resource management systems must be developed locally and account for a diverse range of factors if they are to succeed. The authors conducted interviews to evaluate the perspectives of fishers in the Tonle Sap Lake on the impacts of reforms in 2012 which replaced a commercial leasehold system with a community-based fishery management system. Their results indicate that the 2012 reforms are perceived as having helped to improve economic, environmental, and legal conditions at a macro-level, but improvements in economic productivity at an individual level remain inconclusive. Author: krishnak@uoguelph.ca

Campbell, T., Pin K., Ngor P.B. & Hogan, Z. (2020) Conserving Mekong megafishes: current status and critical threats in Cambodia. *Water*. DOI 10.3390/w12061820

The northern Cambodian Mekong River and its major tributaries are one of the last refugia for Mekong megafishes (fishes which attain a maximum body weight of ≥30 kg). The authors interviewed 96 fishers in 12 villages to investigate trends in populations and body size for eight megafish species in this region. Their results suggest that all eight species have declined greatly in body size and that most have changed from common to uncommon, rare, or locally extirpated over the last 20 years. Fishers identified ten threats to megafishes, including seven types of illegal fishing. The authors conclude that Mekong megafishes are severely endangered and require species conservation strategies to recover their populations. Author: zhogan@unr.edu

Kim M., Mam K., Sean V., Try V., Brooks, A., Thay S., Hav V. & Gregory, R. (2019) *A Manual for Community Fish Refuge-Rice Field Fisheries System Management in Cambodia*. Fisheries Administration and WorldFish, Phnom Penh, Cambodia.

This manual provides detailed guidance on the selection of community fish refuges (CFRs), how to design functional CFRs and how to improve their physical and biological characteristics and connectivity with surrounding environments. This in turn enables them to function as sustainable systems which can be harvested for fish by communities in adjacent floodplains and rice field environments.

Krittasudthacheewa, C., Hap N., Bui D.T. & Saykham, V. (2019) *Development and Climate Change in the Mekong Region: Case Studies*. Strategic Information and Research Development Centre, Selangor, Malaysia and Stockholm Environment Institute Asia Centre, Bangkok, Thailand.

Environmental sustainability is a major concern in the countries of the Mekong Region (Cambodia, Lao PDR, Myanmar, Thailand and Vietnam). This publication presents case studies on a range of environmental issues within the region, including Cambodia.

Kwok, E.Y.K., Bahadur, K.K.C., Silver, J.J. & Fraser, E. (2019) Perceptions of gender dynamics in small-scale fisheries and conservation areas in the Pursat Province of Tonle Sap Lake, Cambodia. *Asia Pacific Viewpoint*. DOI 10.1111/apv.12225

Women's contributions in fisheries are often overlooked due to socio-cultural expectations of roles and responsibilities. The authors interviewed fishers and key informants in Pursat Province to investigate whether there were differences between men's and women's perceptions of i) fishing and non-fishing practices; ii) power, access and control over fishing resources; and iii) percep-

tions towards conservation and conservation areas in the study area. Their findings suggest that community perspectives and unequal power relations have established specific roles for women which limit their participation in fisheries management. Author: eugeniakwok@outlook.com

Sharma, S., MacKenzie, R.A., Tieng T., Kim S., Tulyasuwan, N., Resanond, A., Blate, G. & Litton, C.M. (2020) The impacts of degradation, deforestation and restoration on mangrove ecosystem carbon stocks across Cambodia. *Science of the Total Environment*. DOI 10.1016/j.scitotenv.2019.135416

Despite their contribution to climate change mitigation and adaptation, mangrove forests have been lost or degraded at an alarming rate. The authors used a gridded sampling approach to examine how land use cover in mangroves (pristine, deforested, degraded and restored forests) affects their total carbon stocks and how total carbon stocks vary in mangroves across Cambodia. They found that carbon stocks were always lower in deforested mangroves compared to pristine mangroves, but did not differ between pristine and degraded mangroves and mangroves restored 25 years previously. They also document spatial variability in the carbon stocks of mangrove forests across Cambodia. Author: richard.mackenzie@usda.gov

Sorn P. & Veth S. (2019) *Climate Change Vulnerability Assessment Koh Kapik Ramsar Site, Cambodia*. IUCN, Bangkok, Thailand.

Koh Kapik Ramsar Site is located along the coastline in southwest Cambodia and overlaps with Peam Krasop Wildlife Sanctuary and Botum Sakor National Park. In addition to evergreen and semi-evergreen forests and seagrass beds, this area hosts some of the last remaining pristine mangrove forests around the Gulf of Thailand. The authors evaluate the vulnerability of ecosystems and livelihoods in and around the site to climate change impacts and identify actions to improve local resilience to these impacts.

Sophanna L., Pok H. & Avent, T. (2019) *Climate Change Vulnerability Assessment for Boueng Prek Lapouv Protected Landscape, Cambodia*. IUCN, Bangkok, Thailand.

Infrastructure developments, deforestation, expansion of irrigated agriculture and increasing urbanisation have led to a decline in wetlands within the Lower Mekong Region. The Boeung Prek Lapouv Protected Landscape in Takeo Province is one of the largest remaining seasonally-inundated grasslands in this region and is also one of three conservation areas for sarus crane *Grus antigone* in Cambodia. The authors evaluate the vulnerability of ecosystems and livelihoods in and around the site to climate change impacts and identify methods to strengthen local resilience to these impacts.

Forests & forest resources

Chan V., Khun S., Sun L., Sokheng T., Kim S., Dary C. & Chheang S. (2020) Ethnobotanical study of medicinal plants used for the treatment of headache, low back, and joint pains in three provinces in Cambodia. *Asian Journal of Pharmacognosy*, **4**, 5–14.

The authors investigated medicinal plants used by traditional Khmer healers to alleviate lower back pains, headaches and joint pains in Kampot, Siem Reap and Phnom Penh. They found 108 species were used to treat these ailments, including 65 species for lower back pain, 35 species for headaches and 46 species for joint pains. They conclude that chemical and pharmacological studies should be undertaken to justify the use of five species reported to have the highest fidelity in traditional healthcare. Author: sokuntheakhn@gmail.com

Johansson, E., Olin, S. & Seaquist, J. (2020) Foreign demand for agricultural commodities drives virtual carbon exports from Cambodia. *Environmental Research Letters*, **15**, 064034.

Rapid deforestation is a major sustainability challenge, partly as the loss of carbon sinks exacerbates global climate change. The authors employed remote sensing to identify hotspots for carbon loss in Cambodia between 1987 and 2017 and linked global consumption and production patterns to their environmental effects in Cambodia by mapping the countries to which land-use embedded carbon are exported. Their results indicate natural forests in the country decreased by 21–57% over the study period and that the highest loss rates occurred in economic land concessions. China was found to be the largest importer of embedded carbon and Cambodian investors also negatively affected carbon pools through export-orientated products like rubber. Author: emmajohansson@gmail.com

Ken S., Entani T., Tsusaka T.W. & Sasaki N. (2020) Effect of REDD+ projects on local livelihood assets in Keo Seima and Oddar Meanchey, Cambodia. *Heliyon*, **6**, e03802.

Climate-change mitigation projects are expected to improve local livelihoods in their target areas, but few studies have examined their effects before and during project implementation. The authors applied a sustainable livelihood framework to assess the livelihood assets of local communities in REDD+ project sites in Oddar Meanchey and Keo Seima to this end. Their results suggest that while livelihood assets increased slightly during the study period, natural capital assets declined sharply. The decline was mainly attributed to illegal logging by study respondents, but the scarcity of carbon-credit buyers and projects' inability to generate carbon-based revenues apparently also led to dissatisfaction among local communities, inducing avoidable illegal activities in pursuit of short-term benefits. The authors

conclude that financial mechanisms are urgently needed to ensure sufficient and sustained financial support regardless of carbon-market volatility. Author: ab18l201@ai.u-hyogo.ac.jp

Ota T., Lonn P. & Mizoue N. (2020) A country scale analysis revealed effective forest policy affecting forest cover changes in Cambodia. *Land Use Policy*, **95**, 104597.

Effective conservation approaches are needed to reduce deforestation and degradation in tropical countries. The authors compared levels of deforestation between 2006 and 2016 in community forests, protected areas, otherwise protected forests and non-conserved forest areas in Cambodia. Their results indicate that the first three management approaches significantly decreased forest loss compared to non-conserved areas and suggest that protected forests and community forests were the most and least effective in doing so, respectively. They also suggest that the authority managing a given approach plays an important part in its effectiveness. Author: ota.tetsuji.887@m.kyushu-u.ac.jp

Riggs, R.A., Langston, J.D., Beauchamp, E., Travers, H., Ken S. & Margules, C. (2020) Examining trajectories of change for prosperous forest landscapes in Cambodia. *Environmental Management*. DOI 10.1007/s00267-020-01290-9

Conservation initiatives for tropical forests must deal with complex social, political and ecological decisions involving trade-offs between the extent of protected areas and quality of conservation. The authors examined the drivers and effects of rural forest landscape transitions in Cambodia to identify trade-offs between conservation and development. They explore three scenarios for the future of conservation in-country and contend that conservation efforts should focus on strengthening governance to meet social and environmental requirements for sustainable forest landscapes. They also conclude that realistic priority setting is needed in contested forest landscapes and that prosperous rural economies are a necessary but not sufficient condition for conservation. Author: Rebecca.riggs@my.jcu.edu.au

Tsujino R., Kajisa T., & Yumoto T. (2019) Causes and history of forest loss in Cambodia. *International Forestry Review*, **21**, 372–384.

The authors investigated literature and statistics on land use and socio-economics to reconstruct patterns of forest loss in Cambodia since the 1960s. Their results indicate that national forest cover stood at 73.3% (13.3 million ha) in the 1960s and declined to 47.3% (8.6 million ha) by 2016. They explore the circumstances associated with the different rates of forest loss observed over this period. Author: tsujino@nara-edu.ac.jp

The Recent Literature section was compiled by Neil Furey, with contributions from Gerard Ryan and Chhin Sophea.