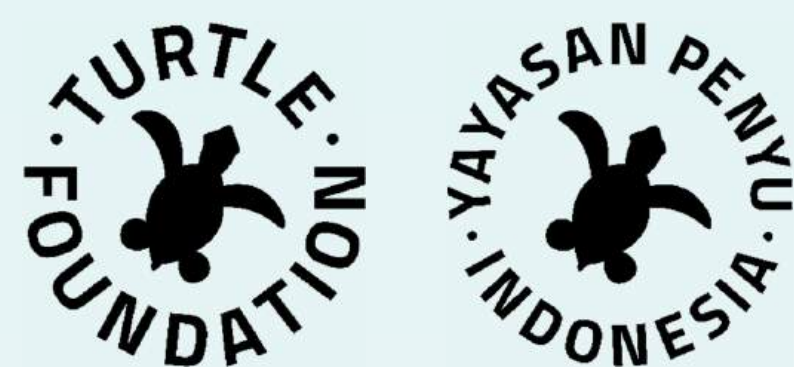


Protecting Indonesia's largest green sea turtle nesting rookery: A two-decade retrospective and key insights

Thomas Reischig¹, Mohamad Jayuli², Rusli Andar², Meriussoni Zai², Jatmiko Wiwoho², Hiltrud Cordes¹

¹Turtle Foundation, Cologne, Germany; ²Yayasan Penyu Indonesia, Denpasar, Indonesia



Introduction

- In Indonesia, green sea turtles have long been exploited for human consumption.
- While turtle meat is more common in non-Muslim areas, it is largely rejected by the Muslim majority for religious reasons.
- However, turtle eggs remain a sought-after delicacy, leading to widespread exploitation of turtle populations, including the largest Indonesian green turtle nesting population in the Derawan archipelago.
- Since 2000, Turtle Foundation, and its local partners, which is now Yayasan Penyu Indonesia, has worked to protect this vital turtle population.
- Despite setbacks, the project has led to around 90% of the nesting population being largely protected from egg collection.



Green turtle landing for nesting on Bilang-Bilangan, Derawan archipelago

The Derawan (Berau) Archipelago

- The Derawan or Berau archipelago is part of the district of Berau in the East Kalimantan Province. It consists of 31 mangrove and coral islands.
- The archipelago belongs to the Sulu-Sulawesi Marine Ecoregion and is part of the coral triangle famous for its unique biodiversity. The ecological diversity of the archipelago's waters is further enhanced by the influence of the large Berau river, which has its mouth here.
- Only four of the islands are permanently inhabited: Maratua, Derawan, Balikukup, and Kaniungan Besar.
- Green turtles nest on around 10 of the coral islands, however, around 90% of nesting occurs on only five islands: Sangalaki, Bilang-Bilangan, Mataha, Belambangan, and Sambit
- Parts of the archipelago are now Marine Protected Area (MPA). Its core zone includes two of the most important nesting islands, Bilang-Bilangan and Mataha.
- However, the archipelago still faces considerable threats from human exploitation including destructive fishing practises (e.g., explosives, poison).



Historical Situation and the Birth of the Project

- The islands likely have a long history of turtle egg harvesting, probably dating back centuries. Since Indonesia gained independence post-World War II, the district government has regularly issued licenses to egg traders.
- Anecdotal evidence from Schulz (1984) indicates that nest numbers on Sangalaki were approximately ten times higher in the 1950s. This suggests that the current population size may only be around 10% of what it was 70 years ago.
- The practice of licensed egg harvesting was still in place when a German film team produced a documentary about sea turtles on Sangalaki. Swiss diving tourists who were shocked by the same experience of rampant egg exploitation there joined forces with the film producer, and together they founded Turtle Foundation Germany in March 2000.
- During a survey phase in 2000 and 2001, around 10-20% of the nests could be protected in consultation with the egg collectors and as part of an adoption programme.
- From January 2002 on, egg collection was officially prohibited on Sangalaki. A permanent ranger station was erected and a hatchery was founded year-round nest protection and data collection, which was mainly implemented by Turtle Foundation.



Egg collection witnessed during documentary shooting in 1999

Project islands and Green Turtle Nesting Numbers



The first ranger station was built on Sangalaki



Islands of Mataha (front) and Bilang-Bilangan (back)



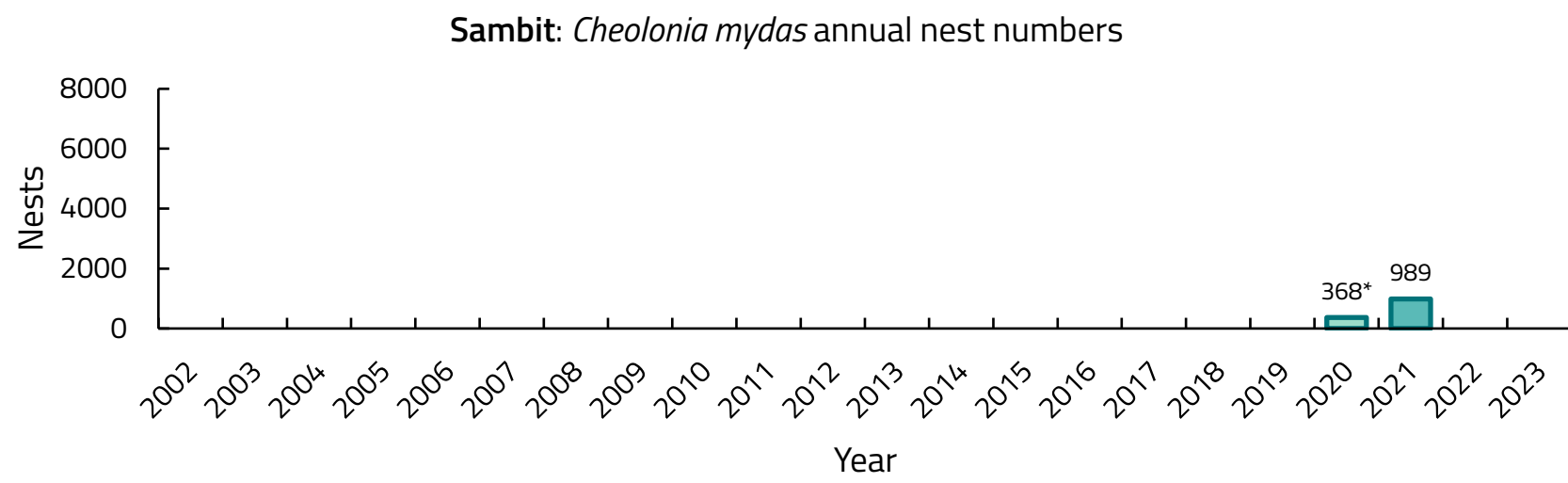
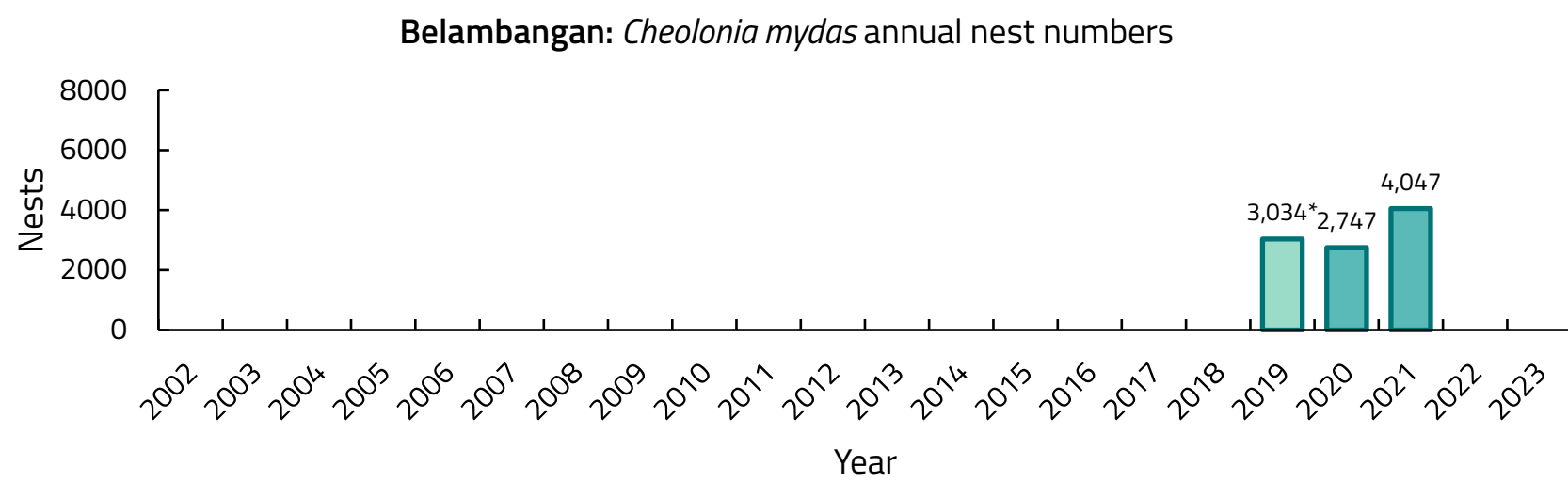
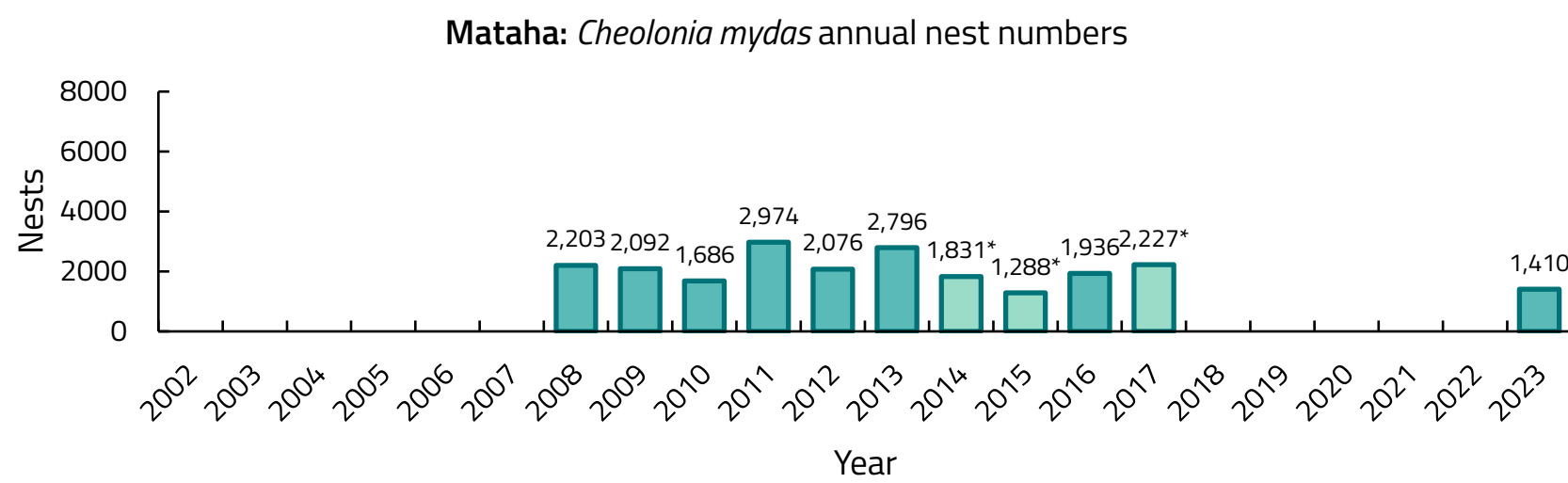
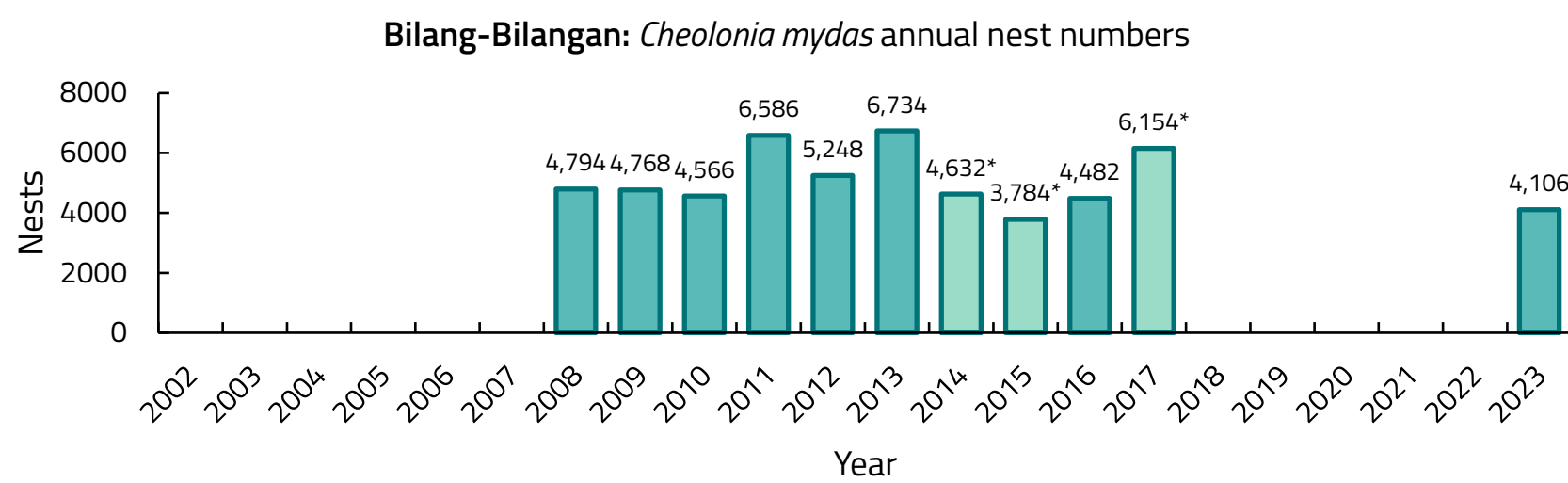
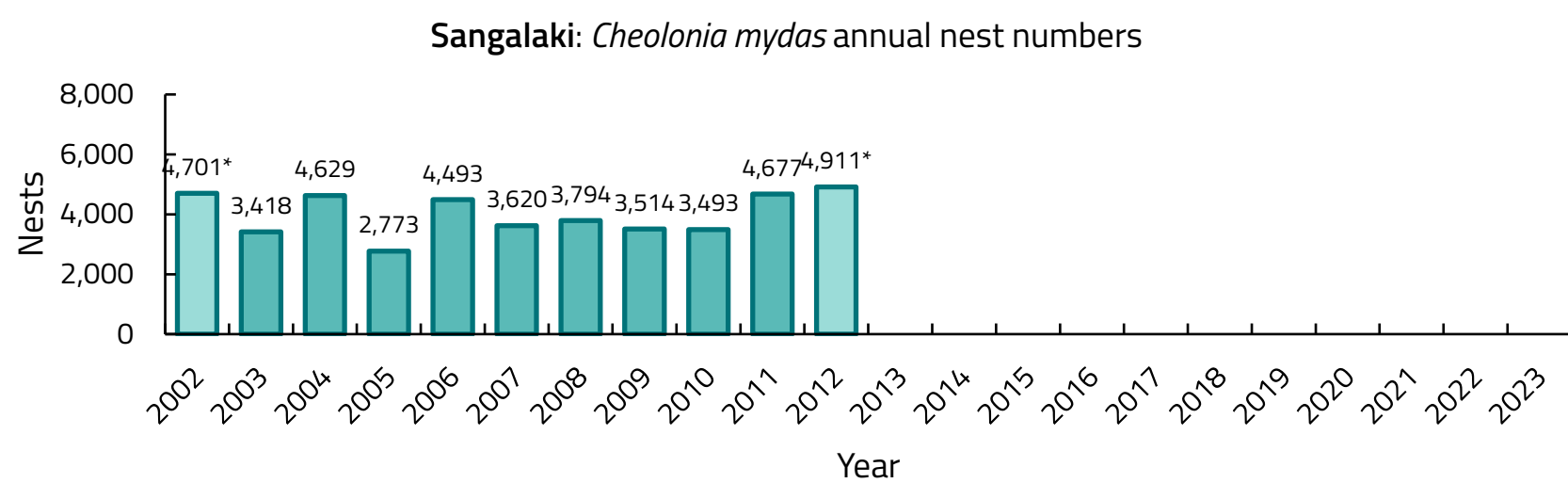
The tiny lighthouse island Sambit



Ranger during nest excavation on Mataha

Sangalaki

- Project start:** March 2000, full protection since January 2002
- Circumference (= nesting beach length) and area:** 1.58 km, 17.8 ha
- Clutches/year:** average 3,801 (n = 9 a), min. 2,773, max. 4,911*
- Remarks:** Island uninhabited except for a diving lodge. A popular tourist island due to its easy accessibility. Project suspended in October 2012. Official administration of protection by BKSDA.



Light colour and * on number: Year with incomplete data record. For Sangalaki, Bilang-Bilangan, and Mataha, values were corrected by sinusoidal extrapolation

A Colourful Project History

- Despite criticism from the former egg trade profiteers on Derawan Island, the protection of the nesting island Sangalaki was eventually accepted, leading to a halt in egg harvesting. However, illegal egg collection continued unabated on other unprotected islands.
- In 2008, Turtle Foundation was allowed to replicate the successful Sangalaki protection model on Bilang-Bilangan and Mataha, together with Sangalaki ensuring the protection of approximately 75% of the green turtle nests in Berau.
- In October 2012, however, spokespeople from Derawan interest groups were able to secure the transfer of responsibility for turtle monitoring on Sangalaki to the conservation authority BKSDA, while Turtle Foundation's activities there were suspended.
- In addition, the Turtle Foundation's engagement on Bilang-Bilangan and Mataha was suspended in 2017 due to differing perspectives with the implementing organisation. For us, however, it was important that the protection of the islands' nests was continued by the organisation.
- In August 2018, the Indonesian organisation Yayasan Penyu Indonesia was established and has since been our local partner for project management in Indonesia.
- Since January 2023, Yayasan Penyu Indonesia and Turtle Foundation are again managing the protection project on Bilang-Bilangan and Mataha.
- A Memorandum of Understanding (MoU) is currently being prepared with the BKSDA to take up cooperation on sea turtle conservation on Sangalaki.

Bilang-Bilangan and Mataha

- Project start:** January 2008,
- Bilang-Bilangan, circumference and area:** 2.24 km, 25.7 ha
- Mataha, largest diameter and area:** 2.44 km, 15.3 ha
- Clutches/year B-Bilangan:** average 5,161 (n = 7 a), min. 3,784*, max. 6,734
- Clutches/year Mataha:** average 2,147 (n = 7 a), min. 1,288*, max. 9,974
- Remarks:** Uninhabited neighbouring islands, which are managed together. Located in the core zone of the Berau Marine Protected Area. Project suspended in September 2017, but resumed in January 2023. Official administration of protection by Ministry for Marine Affairs and Fisheries.

Belambangan and Sambit

- Project start:** March 2019 (Belambangan), August 2020 (Sambit)
- Belambangan, largest diameter and area:** 1.39 km, 11.2 ha
- Sambit, largest diameter and area:** 0.65 km, 3.3 ha
- Clutches/year Belam:** average 3,397 (n = 2 a), min. 2,747, max. 4,047
- Clutches/year Sambit:** 989; only one full year
- Remarks:** Uninhabited islands (except for lighthouse guards on Sambit), neighbouring and managed together. Project suspended in December 2021.

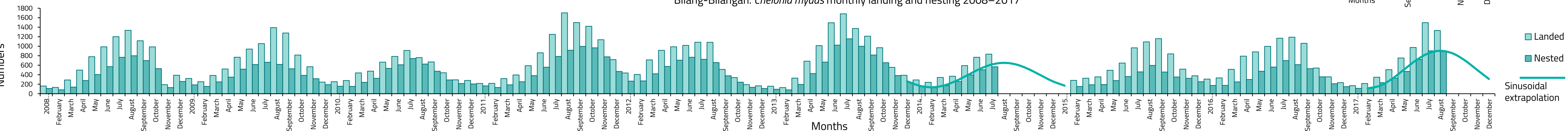
Project Outcomes and Lessons Learned

- The greatest outcome of our work in Berau is that despite obstacles and setbacks all the major nesting islands in the archipelago are now involved in active conservation initiatives. We remain involved in the region on many levels and will continue to ensure that the protection of the archipelago's sea turtles is given the priority it deserves.*
- As a young private grassroots initiative, our efforts initially focused on direct conservation action and overcoming financial and logistical barriers. However, recognising the vital role of community involvement and participation in conservation projects, we now prioritise the integration and involvement of local people at all levels.
- When working with partners, it is very important to define important elements of collaboration such as reporting and financial accounting as precisely as possible and in mutual agreement from the beginning.
- Differences in the legal situation in different countries often only become apparent when problems arise. The best possible protection and information in legal transactions is very advantageous but does not always protect against surprises.
- The diverse and complex web of political, personal, but also financial interests that we often encounter in conservation should not be underestimated.
- Persistence and perseverance pay off in the end!**



Community event celebrating World Turtle Day with mascot Kimi on Maratua

Bilang-Bilangan: Chelonia mydas monthly landing and nesting 2008–2017



References:

Adnyana W. et al. (2008). Status of green turtle (*Chelonia mydas*) nesting and foraging populations of Berau, East Kalimantan, Indonesia, including results from tagging and telemetry. Indian Ocean Turtle Newsletter 7: 2–11. Schulz J. 1984. Turtle conservation strategy in Indonesia. ICVN/WWF report no. 6

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