

Further reading

Original source article:

Matsuzawa, T. (1997). The death of an infant chimpanzee at Bossou, Guinea. *Pan Africa News*, 4:4-6.

Selected articles on research at Bossou and Nimba:

Hirata, S. et al. (1998). Green passage plan (tree-planting project) and environmental education using documentary videos at Bossou: A progress report. *Pan Africa News*, 5:18-20.

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Humle, T. & Matsuzawa, T. (2001). Behavioural diversity among the wild chimpanzee populations of Bossou and neighbouring areas, Guinea and Cote d'Ivoire, West Africa: A preliminary report. *Folia Primatologica*, 72:57-68.

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Matsuzawa, T. (1994). Field experiments on the use of stone tools in the wild. In: R. W. Wrangham, W. C. McGrew, F. B. M. de Waal, P. G. Heltne (eds.) *Chimpanzee Cultures*. Harvard University Press, Cambridge, MA, pp. 351-370.

Matsuzawa, T. et al. (2001). Emergence of culture in wild chimpanzees: Education by master-apprenticeship. In: T. Matsuzawa (ed.) *Primate Origins of Human Cognition and Behavior*. Springer, Tokyo, pp. 557-574.

Sugiyama, Y. (1981). Observation of the population dynamics and behavior of wild chimpanzees at Bossou, Guinea, 1979-1980. *Primates*, 22:435-444.

Sugiyama, Y. (1989). Population dynamics of chimpanzees at Bossou, Guinea. In: P.G. Heltne, L.G. Marquardt (eds.) *Understanding Chimpanzees*. Harvard University Press, Cambridge, MA, pp. 134-145.

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Jokro's namesake in the local Manon language: the tree *triplochiton*

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Jokro: The death of an infant chimpanzee

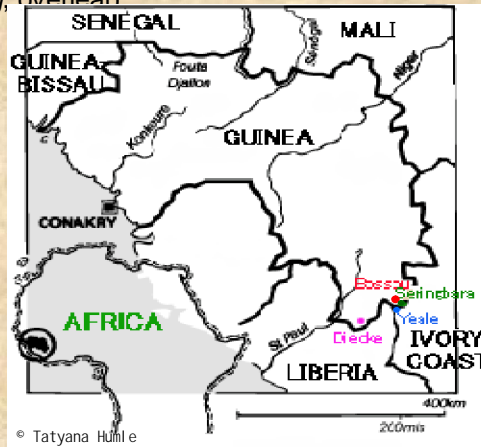


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Jokro's home: Bossou, Guinea

The hills of Bossou, 550m above sea level are part of the Biosphere of the Nimba Mountains. The village of Bossou (7°39'N and 8°30'W) is 1050km from Conakry and 6km from the foot of the Nimba mountains, on Guinea's southeastern border with Cote d'Ivoire and Liberia. Bossou is surrounded by small hills 70-150m high that are covered by primary and secondary forests. A small population of about 20 chimpanzees (*Pan troglodytes verus*) inhabits the forest surrounding the village. They have been studied continuously by a group of Japanese scientists and international collaborators since 1976, leading to a variety of fascinating observations (see suggestions for *Further reading*, overleaf)



Jokro's family

Jokro was born in 1989, to a then approximately 33-year-old mother, Jire. Her father was most likely Tua, the alpha male of the community. Just like all chimpanzee infants, Jokro was inseparable from her mother throughout the early years of her life.

Jokro's older sister, Ja, disappeared from the Bossou community in 1993 - like most adolescent females, she emigrated to join another group of chimpanzees, probably in the Nimba mountains. Later that year, Jire gave birth to another daughter, Julu, and then two sons, Jeje in 1997 and Jimato in 2002. Julu emigrated in 2001, but Jeje and Jimato are both still at Bossou, alive and well.



Tool users of Bossou

With the exception of humans, chimpanzees are the only living primates to consistently and habitually use and make tools. Chimpanzees in their natural habitat use a variety of tools and possess striking inter-population differences. Researchers have come to regard these behavioral variations as cultural traditions.

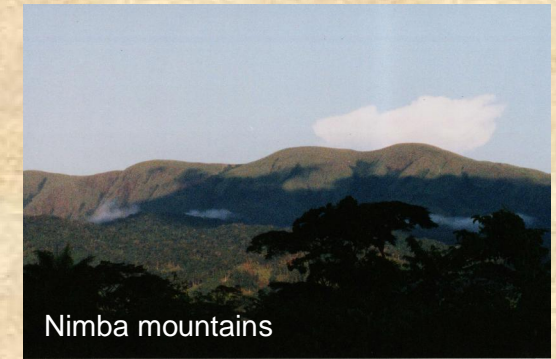
Chimpanzees at Bossou are well known for using a stone hammer and anvil to crack open the nuts of the oil palm tree (*Elaeis guineensis*) – the most sophisticated form of tool use found in the wild. In addition, they have been observed to use leaves for drinking water, wands to fish for ants, twigs to fish for algae floating on a pond, and petioles of the oil-palm tree as pestles to extract the soft pith of the tree.

Infant chimpanzees begin to show interest in the objects their mothers use as tools from a very early age. Infants as young as 1 year will play with, for instance, stones and nuts, long before they learn to combine these materials in the appropriate fashion for nut

“Green passage” plan

Bossou is also home to the Manon people, an ethnic group now dispersed among several villages in the south-eastern part of Guinea, and the north of Côte d'Ivoire and Liberia. Bossou provides a rare example of a site where wild chimpanzees and local people have been living side by side, sharing the resources of the same forest. This peaceful coexistence stems from the beliefs of the villagers, who consider the chimpanzee as one of their totems.

In spite of this long-term protection, the Bossou chimpanzees have been isolated from neighboring chimpanzee populations - a fact that can create a viability problem for this community in the future, given the lack of genetic flow between populations.



In 1997, a project was launched to protect and guarantee a future for this chimpanzee community. Researchers from the Primate Research Institute of Kyoto University, in co-operation with local villagers and with support from the Guinean government, the Japanese Embassy in Guinea, and the Japan Fund for Global Environment, have begun to create a "green passage". The aim is to plant trees along a 300m wide and 4km long stretch of savanna extending between Bossou and the Nimba Mountains in the hope of re-establishing a flow of migration between the Bossou chimpanzee community and the surrounding populations. The project has got off to a very successful start, but much remains to be done. We hope to receive further support allowing us to continue our endeavour whose ultimate goal is to save the

This is the true story of an infant chimpanzee at Bossou, Guinea, West Africa, who died at the age of 2 and a half years.

A researcher happened to capture her life on videotape for 16 days before her death and 27 days thereafter. The mother was named Jire, an approximately 35-year-old female. The infant's name was Jokro...

In January 1992, I visited the forests of Bossou, in Guinea. At Bossou, there is a long-term research site where we can observe stone-tool use by wild chimpanzees. Here comes a female chimpanzee named Jire. She is carrying her baby on her back. The baby is called Jokro.

January 10th

Chimpanzees at Bossou use a pair of stones to crack open oil-palm nuts. Jokro, the baby, sits by her mother's side. She seems to have a runny nose. Right behind Jokro sits her big sister, Ja



January 18th

Ten days have passed since Jokro caught a cold. When her mother comes to sit nearby, Jokro slowly approaches her and starts to groom. Infants begin to groom their mother and other members of the community at the age of 1-and-a-half years. However, infants are not very good groomers, and so the bouts tend to be short. But, on this day, Jokro grooms her mother for a long time, with eager attention. Nevertheless, Jokro no longer eats, and does little apart from sit quietly by her mother.



January 19th

The next day.... Jokro suddenly falls to the ground! Her big sister Ja, walks over to her and tugs at her hand and leg. Ja tries to pull Jokro up. But she does not stir.

The group now starts to move. Ja follows the others, and Jire comes to the infant. She gently lifts Jokro onto her back. There seems to be some energy left in Jokro yet. She grasps the hairs on her mother's back as they move away.

January 20th

The next day. Jokro's condition has improved a little. She is sitting next to her mother. However, she has stopped suckling. Her eyes are closed and her head rests on her bended knees.

January 23rd

Three days later, Jokro's condition has seriously deteriorated. When Jire takes her hand and lifts her onto her back, Jokro just succeeds to cling to her. As they pass in front of me, I see that Jokro's eyes are still open, and they look straight into mine.

Jire continues to chase away the flies attracted to the dead body. Then, she picks up the body and looks directly into its face. She starts to clean Jokro's face. She grooms her daughter's remains as if she were still alive.



Soon after, I observe a youngster playing with the body, while the adults are taking a rest. A 6 and a half year old male, named Na, takes Jokro's body and climbs a tree with it.

He swings the corpse and lets it fall to the ground from a height of about 5 meters. He rushes down the tree and picks it up, then climbs up and drops it again. He repeats this over and over. It looks like two young chimpanzees playing chase. Meanwhile, Jire looks on gently.

February 15th

21 days after death. Jire's bottom is swollen and pink. This is how a female chimpanzee's body signals the time of ovulation. A 5 and a half year old boy stands up, raises his arms, and shows his penis in a sexual courtship display. It is not unusual for such a young chimpanzee to perform courtship in this way. However, Jire does not abandon her dead infant.

February 17th

One day, a very interesting episode occurs. Tua, the alpha male of the community, rushes toward me in a charging display. He uses Jokro's mummified body as a part of his display. Chimpanzees usually use dead branches to accentuate power in a charging display. Yet this time, Tua uses the body of a dead infant.

Ja is 7 and a half years old, and she can already crack open the nuts. Jokro is 2 and a half, and she cannot use the stone tools yet. Instead, she steals nuts from her mother. But it looks like Jokro is not feeling too well... She may have caught a cold. Although the forest is located close to the equator, the temperature drops in January. At night, it can fall below 15 degrees Celsius.

Jire puts the back of her fingers against her daughter's forehead. It looks almost as if, being anxious about Jokro, she is checking her body temperature.

January 12th

Jokro is riding on her mother's back, and so together they arrive at the nut-cracking site. Chimpanzee infants stay with their mothers until they reach the age of about 5 years.

Jokro starts to suckle. She will continue to feed on breast milk until the age of at least 3-and-a-half years, even though she can also eat other foods.

January 13th

The next day, Jokro's walk is unsteady. If you look carefully, you can see that the hair around her hips is in poor condition. Although Jire, the mother, cracks nuts as usual, Jokro only sits by her side.

January 16th

Three days have passed. Jokro's condition is worsening. She is sitting alone, hardly moving, not far from her mother. Ja, Jokro's 7-and-a-half-year-old big sister, walks over to Jokro. She invites her to play. Ja touches Jokro, but Jokro does not respond. So Ja bends a shrub, trying to encourage Jokro to play in this way. But still, Jokro does not move.



After cracking nuts, the chimpanzees move on to feed on fruits high up in the trees. As they are moving from one tree to the next, I happen to observe that Jokro's big sister, Ja, is transporting a log. She carries the log on her shoulder, or holds it under her arm. When she stops on a branch, she gently pats the log. To me, this is somehow reminiscent of the toys of young girls native to the area around Bossou, whose dolls consist of a simple straight log with hair attached to the top. It seems as if Ja is pretending that the log is her ill little sister, and she is caring for it as her mother cared for Jokro.

January 25th

Jokro's arms and legs hang lifelessly.

Jire puts her daughter on the ground. I look at Jokro's chest, but see no signs of breathing. I realize that she is dead – she died this very day.

Jire takes Jokro's hand and places her body on her back. She is holding Jokro's wrist between her neck and shoulder. Just like when she was alive, Jokro is "riding" on her mother's back in prone posture.

January 27th

Two days have passed since I confirmed Jokro's death. Her corpse is lying face up, supine posture, on the back of the mother. The belly is swollen with gas. Jokro's body has started to decompose. Jire chases away the flies circling her dead infant.

January 28th

3 days after death. Jire continues to carry the body, but its posture has become more strange. It is lying on its back, upside down. The head is facing backwards. Jokro's belly is now flat. The rotting seems to have slowed.

January 29th

4 days after death, Jokro's body has begun to dry out – it is mummifying. The shape is becoming distorted. But the mother has returned to carrying it the way she would a live infant – right side up, and in the normal prone position.

Tua, the alpha male of the community, sniffs Jokro's corpse. I myself can smell the strong odour of decomposition. However, other members of the community show no signs of aversion to or fear of the lifeless body.

When Jire puts the body on the ground, other chimpanzees peer at it curiously. They watch as the mother picks fly larvae off her infant's remains.

February 3rd

9 days after death. A fight breaks out within the community. Jire does not release Jokro's hand. She holds her daughter's arm between her neck and shoulder, keeping it safe from falling as she climbs.

February 9th

15 days have passed since Jokro died. Her body has now completely dried out. Jire continues to carry the body cautiously.

But now the mother has noticed a change in her own body. Because her infant has died and stopped suckling, Jire's menstrual cycle has returned.

However, I notice a subtle detail. When Tua turns around, he gently switches the body from his right to left hand. With branches, he has never shown such delicate handling as with Jokro's remains.

I sense an unknown side to him, and others of his kind – a part hiding deep within the chimpanzee's mind.

Tua abandons the body right in front of me, only about 5 meters away. Jokro has become a perfect mummy. All her body parts have remained intact – only a jaw is missing.

The mother, Jire, retrieves Jokro's body, just as she always has.



And so an infant chimpanzee lived and died in the forest of Bossou. She was 2-and-a-half when her life ended, but I observed how she remained with her community for a month beyond her death.

The word "Jokro" comes from the language of the area's native people, the Manon. It is the triplochiton, a huge tree with leaves in the shape of a hand.

...Perhaps Jokro will be reborn in her next life as her namesake – and live for a hundred years.

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