

Lek habitat and behavior of the greater bird-of-paradise in South Papua, Indonesia

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Manuscript received: 17 March 2025. Revision accepted: 10 October 2025.

Abstract. Mulyani YA, Mardiasuti A, Rahayu P, Murtini. 2025. Lek habitat and behavior of the greater bird-of-paradise in South Papua, Indonesia. *Biodiversitas* 26: 5057-5066. The greater bird-of-paradise (*Paradisaea apoda*) is renowned for its extraordinarily beautiful display in its lek mating system. Given the threat posed by this endemic species from hunting and habitat conversion, a conservation effort is critical. However, data on its bio-ecology remain limited. This study aims to describe the characteristics of the lek tree and its surroundings as a lek habitat, and lek behavior, especially concerning the males on the lek trees during courtship display. The research was conducted in a post-logging timber concession company in South Papua in July 2023, through direct observations of behavior and the lek tree habitat. Two lek trees were identified, but observation was focused on one lek tree. The lek tree was a tall, emergent tree of *Gironniera* sp. (27 m, clear bole height 17 m; diameter 39.7 cm), surrounded by a dense tree canopy. The dominant trees in the lek site included *Litsea firma*, *Vatica rassak*, and *Syzygium* sp., with importance value indices of 41.79%, 31.33%, and 28.17%, respectively. The observation period at the lek tree spanned 7 days, totaling 303 minutes; lekking activity occurred from 6:00 am to 10:00 am and 2:00 to 4:15 pm. The behavior of the male birds could be categorized into arrival of a male host, arrival of other males, arrival of females, initiation of dance rituals by males, male selection by females, mounting and copulation, departure of females, and departure of males. Mounting was observed only twice by a single male. The males' frequent loud calls during lekking make them highly detectable and prone to illegal hunting. The lek trees in this post-logging area indicated the importance of habitat management for species conservation. Protecting lek habitats by controlling logging operations and developing avitourism initiatives are important approaches to support the conservation of the greater bird-of-paradise and regional biodiversity in South Papua.

Keywords: Conservation, courtship, lek tree, mating, *Paradisaea apoda*

INTRODUCTION

The lek mating system is a reproductive strategy found in polygynous species, where males gather in a specific area, called a *lek*, to perform courtship displays. Birds-of-paradise are among the most well-known species exhibiting this system (Miles and Fuxjager 2018; Blom et al. 2024; Pramunandya et al. 2024). In this system, males compete for female attention, while females are free to choose their mates because males neither defend territories nor maintain harems. Female selection is based on male attributes such as plumage and performance (Krebs and Davies 1978). The extravagant plumage and displays of birds-of-paradise are supported by high food availability (Irestedt et al. 2009), and their remarkable courtship performances—lasting from seconds to hours—represent one of nature's most striking examples of sexual selection (Rathore et al. 2022).

Papua's diverse ecosystems provide suitable habitats for many vertebrates, including the family Paradisaeidae (order Passeriformes), which comprises 27 species recorded in Indonesia. The greater bird-of-paradise (*Paradisaea apoda*) inhabits humid tropical rainforests, particularly lowland and hill forests at 0-950 m asl, distributed from the southern Jayawijaya Mountains and

southern lowlands of Papua (from Timika eastward) to the Fly and Strickland Rivers in Papua New Guinea, as well as the Aru Islands (Pratt and Beehler 2015). However, hunting and habitat conversion drive its population in Indonesia's Papua to decline (Mardiasuti and Mulyani 2024a). Rapid deforestation in Papua (Indrawan et al. 2019) and infrastructure expansion following the establishment of new provinces, such as South Papua, pose additional threats. Road construction, for instance, fragments habitats and facilitates hunting access (Pattiselano and Krockenberger 2021).

Although the species is listed as Least Concern on the IUCN Red List (BirdLife International 2024), its decreasing population justifies continued protection. The greater bird-of-paradise is legally protected under Indonesian law and included in CITES Appendix II, restricting international trade.

This species exhibits sexual dimorphism. Males measure up to 43 cm in length, while females are smaller, around 35 cm (Pratt and Beehler 2015). Females have maroon-brown plumage, whereas males possess a brown body, yellow head, green throat, long twin tail wires, and yellow flank plumes used in displays (van Balen et al. 2015). Birds-of-paradise in general show an extraordinary

range of sexual dimorphism, characterized by elaborate plumage coloration and complex display behaviors (Martin 2015).

During the breeding season, which occurs around July–August in the study area (Pramunandya et al. 2024), several males gather on tall emergent trees known as *lek* trees. There, they perform elaborate “dances,” exhibiting their colorful plumage and a series of courtship movements to attract females (Mardiastuti and Mulyani 2024a; Pramunandya et al. 2024). These lek trees may also serve as food sources (Pramunandya et al. 2024). For lekking species such as the greater bird-of-paradise, the availability of suitable lek sites directly influences mating success and, consequently, its species' survival.

Plumage coloration, display behavior, and vocalizations are critical features of courtship and are essential for understanding the evolution and taxonomy of birds-of-paradise (Scholes et al. 2017). However, information on the lekking behavior of the greater bird-of-paradise in its natural habitat remains limited. The most comprehensive behavioral observations were conducted decades ago by Dinsmore (1970) on a population introduced to Tobago Island, where he categorized the species' courtship into four stages: *wing pose*, *pump*, *bow*, and *dance*. Behavioral studies in Indonesia are scarce and mostly focus on the lesser bird-of-paradise (*Paradisaea minor*) that is distributed in northern Papua (Lahallo et al. 2022). Some recent research has described population and habitat aspects of the greater bird-of-paradise in the Aru Islands (Latupapua et al. 2022) and tree species used for lekking (Raunsay et al. 2023). Despite its legal protection, the species continues to face threats from habitat loss and hunting. Limited scientific research on lek ecology hampers effective conservation planning. Given that lekking behavior represents a key phase in the reproductive cycle, detailed studies on lek habitat characteristics and courtship behavior are essential for species conservation

management. The scarcity of data is partly due to the species' remote distribution compared to other *Paradisaea* species (Frith and Frith 2009). This study aimed to describe the habitat characteristics of lek trees and their surrounding environments as lek habitats of the greater bird-of-paradise, and to document and analyze the behavior of males on lek trees during courtship displays.

MATERIALS AND METHODS

Study area

The study was conducted in the Indonesian province of South Papua, close to the country's border with Papua New Guinea (PNG) (Figure 1). The study site was a timber concession area, a limited liability company registered as PT Inocin Abadi (99,665 ha; 6°40'30"-7°2'30"s, 140°33'30"-140°50'0"e), managed by the Korindo Group. Administratively, PT Inocin Abadi is located in Asiki Sub-district, Boven Digoel District, South Papua Province, Indonesia. PT Inocin Abadi received a sustainable forest management (SFM) certification from the Indonesian Forestry Certification Cooperation (IFCC) in 2023. The observation was conducted in the 2012 annual cutting plan area (i.e., post-logging area), which has a flat and slightly undulating terrain.

Methods

The lek tree of the greater bird-of-paradise used in this study was initially identified by local people who worked with the concession company and had some prior knowledge of the lek tree's location. Two active lek trees were identified in the study area. One site was selected for this study due to its easy access, particularly for early morning observations.

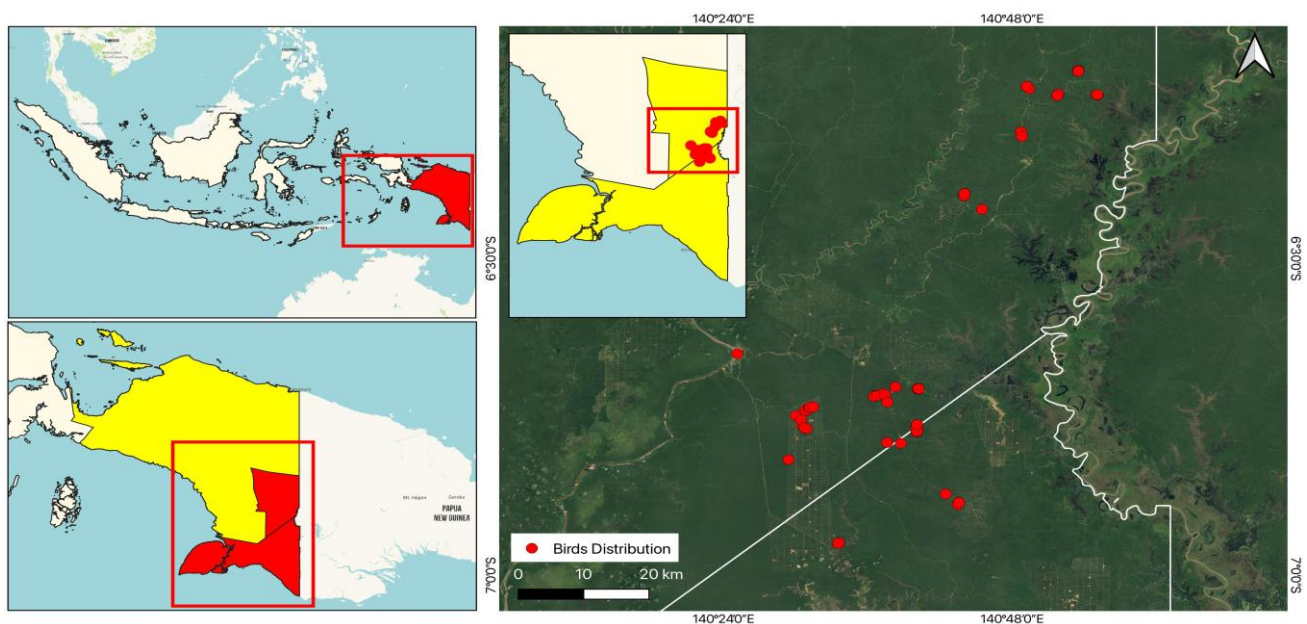


Figure 1. Location of study site in PT Inocin Abadi timber concession, Asiki Sub-district, Boven Digoel District, South Papua Province, Indonesia

The lek tree was situated not far (about 300 m) from a logging road, and roughly a 1-hour drive by car from the nearest main camp. The area surrounding the lek tree was selectively harvested in 2012, following the requirements of the Indonesian government. The habitat's condition was directly observed in the field, focusing on the lek tree and its surrounding habitat. To quantify the habitat, measurements were done in five plots of 20m x 20m for trees and 10m x 10m for poles to calculate the Importance Value Indices (Mueller-Dombois and Ellenberg 1974). Additionally, a single 0.1 ha plot with the lek tree in the middle was made to describe the habitat profile surrounding the lek tree. Measurements included tree height using a Haga altimeter, Diameter at Breast Height (DBH) using a phiband metering device, canopy diameter with a meter band, and the position of other trees relative to the lek tree (using a compass). A habitat profile diagram of the surrounding the lek tree was also created.

Lek behavior observations were conducted during peak breeding season in July 2023, for a total of seven days. Time of observation varied, including very early in the morning (5-8 am) and late afternoon (3-6 pm). All behavioral observations were conducted by observers and local people using binoculars (Nikon Action Ex 8x40) and with a camera equipped with a 300 mm lens from different sighting positions. For safety and to minimize disturbance to the birds, we did not attempt to set a platform on the tree. Due to the height of the lek tree, observations had to be conducted approximately 40 m from the lek tree to optimize observations. The very dense canopy of the surroundings made it difficult to see the birds, except when the birds were in the areas where the canopy was more open. The lower forest canopy was quite dense, and hence, a blind was not necessary. The birds seemed to show normal behavior, and thus it can be assumed that observers did not affect the birds as research objects.

The display movements of the greater bird-of-paradise were comprehensively categorized as wing pose (upholding the wings and tail), pump (extending wings and tail, moving rapidly while jumping around), bow (lowering head with wings almost embracing a branch), and dance (jumping around while flapping wings), following Pramunandya et al. (2024). These observations, from the arrival of the first bird up to the departure of the last individual, provide a detailed understanding of the bird's behavior. The display movements also highlighted the male's visibility, a crucial aspect of the bird's behavior, from the observation points, further enhancing the comprehensiveness of the study.

RESULTS AND DISCUSSION

Results

Lek habitat in general and characteristics of the lek tree

The lek tree was situated in the ex-logging area of Inocin Abadi logging concession company, as mentioned previously, within the 2012 cutting block. There was a logging road bordering one side of the cutting block, and walking trails were absent. The topography of the cutting block was more or less flat, with some low, undulating areas.

Although the site had been previously logged in 2012, at the time of observation, it already resembled a natural primary forest, having a complete five canopy layers (A to E). Many poles and small trees dominated the third (C) canopy layer. There were 154 trees from 27 species and 118 poles from 18 species. Some emergent trees in the top canopy (layer A) occurred surrounded by many tall trees in the second (layer B) canopy layer. The fourth (i.e., mostly seedlings) and fifth canopy (i.e., ground cover) were rather sparse. The forest floor was dense and dark, with few seedlings and ground cover, except under some gaps where seedlings and ground cover were abundant.

Further analysis of the Important Value Index of the area near the lek tree suggested three dominant species for the tree and sapling stages in the study site, with the most dominant species at the tree stage being medang (*Litsea firma*) (IVI: 41.79%). The most dominant species at the pole stage is matoa (*Pometia pinnata*) (IVI: 54.50%) (Table 1). The families of the trees were also diverse, with Dipterocarpaceae, a common family of timber-producing trees, not dominant in this case.

The lek tree (Figure 2) is an emergent tall *Gironniera* sp., with a height of 27.0 m, a bole height of 17.0 m, a trunk diameter of 39.7 cm, and a crown diameter of 12.5 m (longest diameter) and 8.5 m (shortest diameter). During the study, the tree was fruiting. The fruit was small, rounded, and yellow in color (Figure 3). About half of the tree's canopy was open, while the other half was covered by dense foliage. The greater bird-of-paradise primarily used the open area to conduct ritual lekking, while the dense foliage area was used before the males and females joined the lekking ritual in the open. Some advantages and disadvantages of the lek habitat characteristics for the bird are described in Table 2.

Table 1. Important Value Index (IVI) of the top three trees and poles at the lek tree habitat

| Growth stage | Indonesian name | Latin name | Family | IVI (%) |
|--------------|-----------------|------------------------|------------------|---------|
| Tree | Medang | <i>Litsea firma</i> | Lauraceae | 41.79 |
| | Resak | <i>Vatica rassak</i> | Dipterocarpaceae | 31.33 |
| | Jambuan | <i>Syzygium</i> sp. | Myrtaceae | 28.17 |
| Sapling | Matoa | <i>Pometia pinnata</i> | Sapindaceae | 54.50 |
| | Kapur | <i>Gironniera</i> sp. | Cannabaceae | 52.88 |
| | Jambuan | <i>Syzygium</i> sp. | Myrtaceae | 49.01 |

Lekking event and sequence of the lek behavior

The observation on lekking behavior was conducted for 7 days, with a total of approximately 5 hours (303 minutes) of observation. Morning lekking was observed as early as 6 am, and was completed at about 10:00 am, while late afternoon lekking occurred between 2:00 pm and 4:15 pm (Table 3). Atmospheric conditions influenced the time at which lekking occurred. When the day was rather dark due to thick cloud cover, the birds prolonged their lekking ritual. When there was drizzle in the morning, the greater bird-of-paradise also had a longer lekking ritual.

Despite the challenges posed by the dense vegetation, frequent rain, and the birds' high perch, the field observations provided valuable insights into the lekking sequence behavior. The group behavior, although not always allowing for detailed observations, still led to significant information that can be drawn from the field observations, reassuring the importance of this study.

The lek behavior of the greater bird-of-paradise was a complex process, involving numerous ritual activities that were repeated with increasing elaboration. This repetition

and elaboration underscore the significance of these behaviors in the lekking sequence. Figure 4 provides a visual representation of some of the lekking positions of the greater bird-of-paradise.

The lekking behavior started with the first male arriving at the lekking tree. The first male was the first to arrive and the last to leave the lek tree. All activities during the lekking behavior can be simplified into a sequence of eight major activities as follows:

Arrival of a male host. Lekking behavior started when a male host arrived on a lek tree (Figure 5), typically in the morning (around 5:00 am) or in the late afternoon (approximately 5:00 pm). The arrival of the host male was signaled by its loud calls. The male host perched on a more or less horizontal branch with less foliage while moving around, making loud calls. The calls were easily heard from a distance and repeated over and over. If no other males arrived after an hour or so, the host male left the lek tree, and there would be no lekking activity that morning or in the late afternoon.

Table 2. Characteristics of lek trees, with some information about the ecological benefits or consequences of selecting the lek trees

| Characteristics of the lek tree and its surroundings | Ecological function and/or consequences |
|---|--|
| Tall, emergent trees | Repeated calls can be heard from a long distance by other male and female birds; tall trees might hamper monitor lizards as potential predators; the distinct loud call also may attract illegal hunters |
| About half of the canopy has less foliage, creating some open space | Creation of a site for display in the open and a site as cover before display; some fresh leaves underneath suggested that the open area could be created and maintained by the males; displaying birds can be spotted from certain sighting angles by illegal hunters |
| Fruiting trees | Also functions as a food tree during long lekking behavior |
| Many other tall, dense trees surrounded the Lek tree | Surrounding trees functioned as cover for males and females of the greater bird-of-paradise before lekking commenced on the lek tree |
| Dense lower canopy | A dense lower canopy possibly provides security from predators (e.g., monitor lizards) and humans |

Table 3. Lekking event observed on the lek tree in PT Inocin Abadi concession area (cutting period 2012), Asiki Sub-district, Boven Digoel District, South Papua Province, Indonesia

| Date (July 2023) | Starting time | Ending time | Identified an individual and their lek behavior |
|------------------|---------------|-------------|---|
| 6 | 3:58 pm | 4:16 pm | Five males conducted the display. One female perched on the lek tree |
| 7 | 2:30 pm | 4:15 pm | Seven males and five females were on the lek tree; males made many calls; a male was seen chasing a female on the lek tree; wing pose, pump, and bow were observed; copulation was observed |
| 8 | 6:50 am | 8:28 am | Five males were making calls while perched on the lek tree, |
| 14 | 5:59 am | 8:25 am | Six males conducted the display surrounded by four females. Mounting was observed, |
| 15 | 2 pm | 4:16 pm | Many calls by males at 2:18 pm, the host male arrived. Another male perched in a nearby tree. They were calling. At 2:24 pm, another male was calling from the vicinity. A female arrived and displays started from 3:41 pm by the host male, two more males arrived at 3:42 pm and joined the display |
| 22 | 6:18 am | 7:41 am | Many calls by males. Three males and 1 female were observed on the lek tree; pump, wing pose, and bow were identified; copulation was observed |
| 24 | 7:07 am | 10:00 am | Two males were seen perched on the lek tree, while another male was observed perched on a nearby tree, and a male conducted a display at 7:35-7:40 am; many calls were heard from the lek tree until 9:05 am, but display activity could not be observed due to the dense foliage. At 9:59 am, there was one male conducting a display, but at 10:00 am, the male flew away |

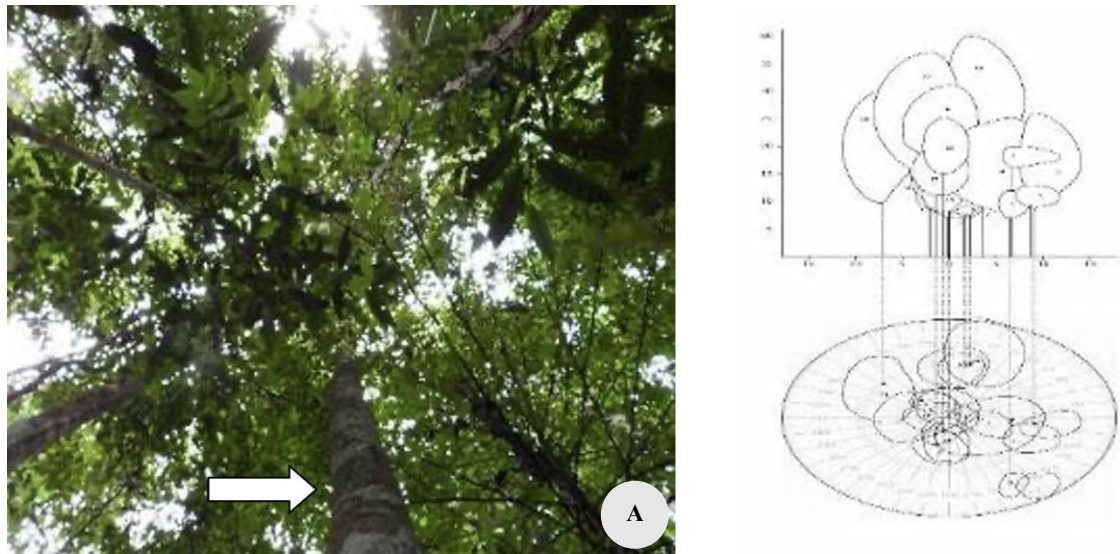


Figure 2. A. *Girroniera* sp. lek tree, B. Schematic diagram of lek tree and its surroundings



Figure 3. Fruit of *Girroniera* sp. as a lek tree

Arrival of other males. In response to the call of the male host, other males arrived and also made calls, mostly perched in the dense canopy of surrounding trees (unseen by observers). A few male birds might perch on the same lek tree on different branches (Figure 6.A). The male host and other males kept making calls over and over. The calling frequency increased, and sometimes there were rather long (up to 5 minutes) pauses. If no female arrived, the calling frequency slowly decreased, indicating that most or all males had left the lek site, leading to the cancellation of lek activity.

Arrival of females. With more frequent calls from males, some females arrived at the lek tree, also perched on the surrounding dense trees (Figure 6.B). Females did not make any calls. The number of males and females arriving at the lek site could not be estimated due to the dense foliage.

Initiation of dance ritual by males. The host male on the lek tree, possibly also other males that had already

joined the host male on the lek tree, initiated a dance and possibly also a wing pose ritual (Figure 7). Sometimes two males danced together, facing each other. Callings continued by the host male and other males. Calling varies from ‘cow.. cow’, ‘kaek.. kaek’, ‘koak.. koak’.

Male selection by females. Some females flew to the lek tree and approached the host male or other males that were already dancing on the lek tree. As females approached the males, the males would continue the dance and wing pose with a more elaborate pump and bow ritual (Figure 8). The female might have moved closer to the male to continue the ritual or fly away and cancel the lek activities.

Mounting and copulation. When a female selected a male, the female took her pose to allow the male to copulate (Figure 9). Copulation occurred on the relatively horizontal branches, although some smaller vertical branches might be used as well by other males (non-host male).

Departure of female. After copulation, the female stayed briefly, shook her body, and flew away while the male continued his dance and wing pose. It was not clear whether the main horizontal branch would be occupied solely by the host male or whether other non-hosts would take turns occupying the main branch due to the many activities of different individuals during the dance ritual and mounting.

Departure of males. The first male on the lek tree and other males (on the lek tree and surrounding trees) continued to make calls, although the frequency became much less. The calls finally stopped, and the host male left the lek tree, indicating that the lekking had ended.

Not all lekking initiated by the host was successful, i.e., copulation with the female did not always occur. Another outcome was the refusal of females to mate with all males participating in the lekking. Unsuccessful lekking might happen at all stages of the sequence (Figure 10).

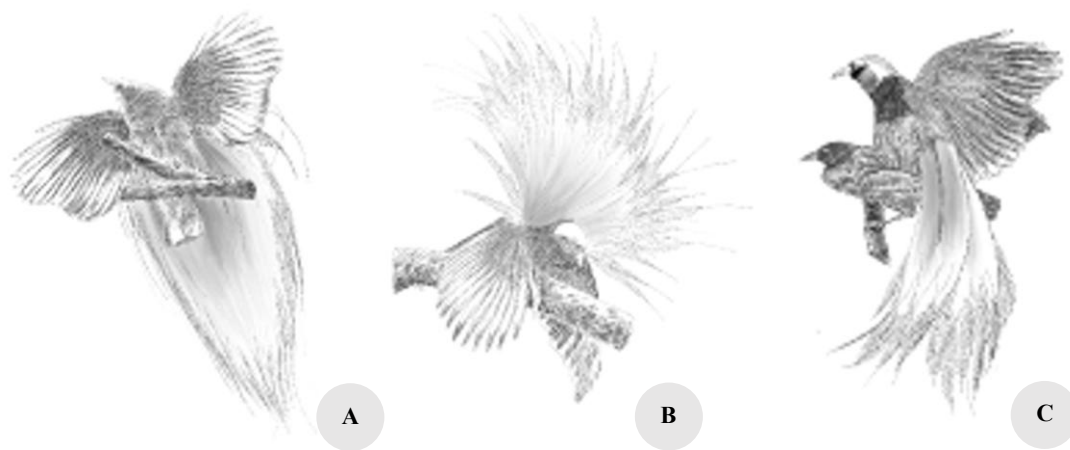


Figure 4. Some illustrations of the lekking position of the greater bird-of-paradise: A. Wing pose, B. Bow, C. Mounting (drawn based on photo and video taken in the field)



Figure 5. The host male arrived on the lek tree and made repeated calls

Discussion

Lek habitat and lekking behavior

This study is the first scientific description of the lek behavior of the greater bird-of-paradise in South Papua, although there was some information on the identification of trees in the Mappi District (Raunsay et al. 2023) and on the mainland in southern Papua. The characteristics of the lek tree in this study were similar to those reported by Latupapua et al. (2022) on Aru Island, Papua, Raunsay et al. (2023) in the Mappi District, and Pramunandya et al. (2024) in the neighboring forest concession in Boven Digoel Regency. All studies reported tall trees with wide and open canopies. The use of clear space of the tree from foliage to display was also known in other species of birds of paradise, such as the twelve-wired bird-of-paradise *Seleucidis melanoleuca* (Frith and Beehler 1997) that uses a bare stump to display about 20 m above ground. Tall and emergent trees with open canopies provided better visibility, which is important in attracting females during courtship when birds were displaying. To increase their chances of attracting a mate, males that develop complex

visual displays will select a location where they can be easily seen (Ucero et al. 2023). Since female choice influences successful mating in lekking birds (Miles and Fuxjager 2108), recognition of visual display by females is crucial. The reason for the prolonged lekking during cloudy conditions is not clear in this study. However, it might correlate with sound characteristics, since sound transmission is better during cloudy weather (Robin 1981).

July seemed to be the peak breeding season in the study area in 2023, and still occurring in August, although a short field visit by the authors in 2022 found displaying birds in May. Pramunandya et al. (2024) observed a dancing male with partly breeding plumage in December of the previous year. Longer breeding seasons in tropical birds have been reported by previous research, and it is most likely due to food availability (Aranzamendi et al. 2019). Unfortunately, no data on food availability or fruiting season were available for the study area. Another study on fruiting trees' availability in the area is still ongoing (Tri Ananda Nur Ikhsan, pers. comm).

Studies focusing on the ecology and behavior of this species have been limited in recent years. Therefore, references from earlier works are still used to support our analysis. Additionally, the most recent studies on the ecology of this species are available only in local publications (Latupapua et al. 2022; Raunsay et al 2023). Several recent studies on birds-of-paradise have tried to reveal the evolution of the complexity of display in the lekking behavior of this group. The findings showed that genes are positively responsible for the morphology and coloration of the feathers (Prost et al. 2019), and that sexual selection was the major driver in ornamental variation in the bird paradise group (Ligon et al 2018). Coates (1990) reported that the greater-bird-of-paradise used a communal lek area with up to eight males displaying and up to a dozen females present at the same time. Andersson et al. (2024) found that in the white-bearded manakin, a frugivorous lekking bird in the Neotropics, the number of lekking behaviors is influenced by the availability of resources.



Figure 6. Another male (A) joins the male host (B), showing the wing pose (A), males dancing, flapping their wings and calling, while a female observes (B)



Figure 7. Types of wing pose performed by the host male and other males (A: Wings are spread while the bird is perched straight, B-D: Host male spreading the wings more while starting to lower the body, followed by another male)

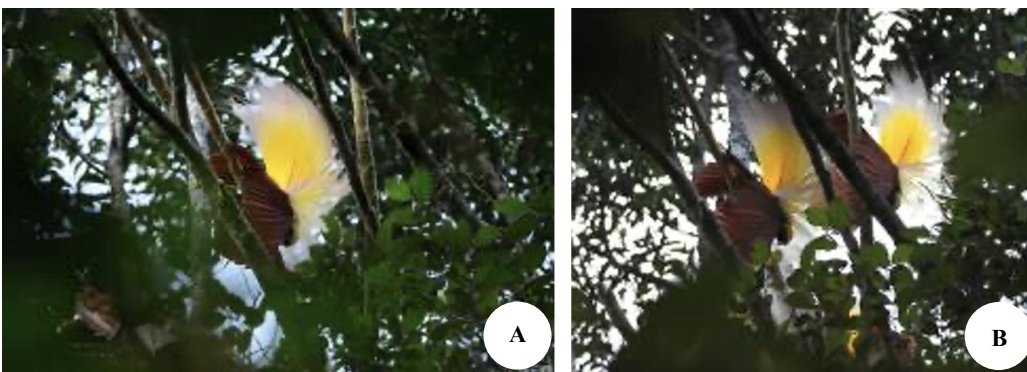


Figure 8. A. Upside down position of the male, and performing a pump and bow ritual, B. Another male joined the host. In this position, the female was already perched nearby, on the same lek tree



Figure 9. A. The female has approached (on the left side of the male), B. Followed by mounting and copulation. The female flew away immediately after copulation, while the male remained on the lek tree, waiting for another female to approach

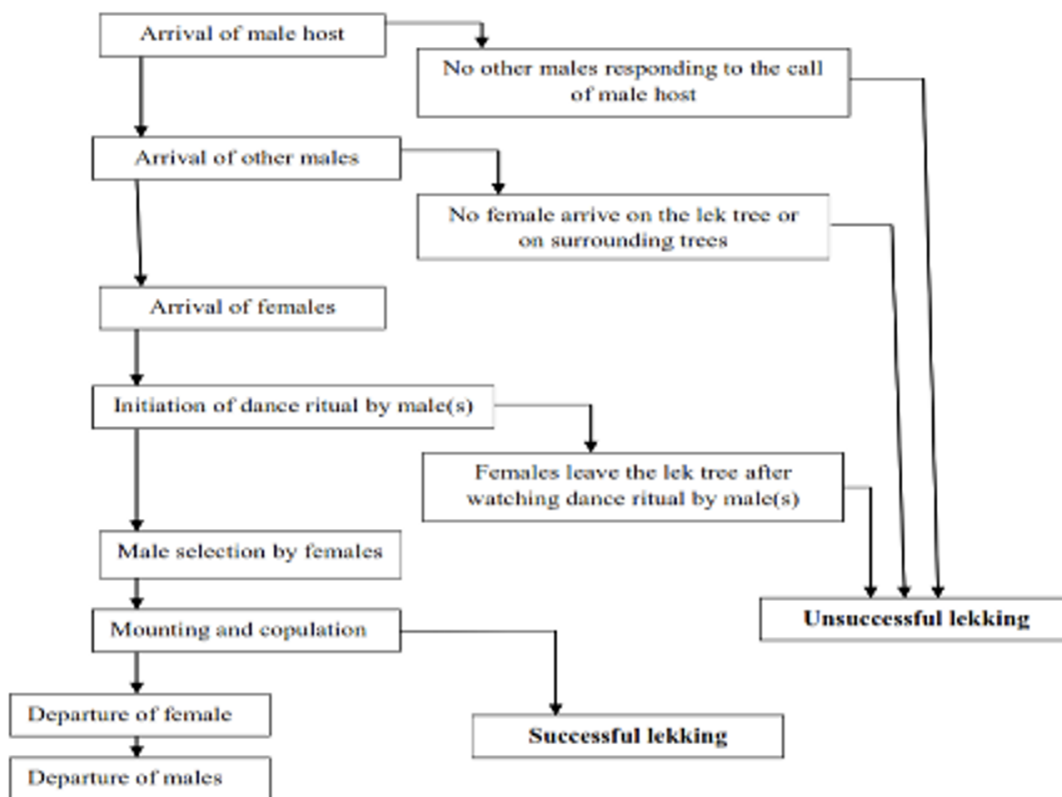


Figure 10. The sequence of the lekking behavior of the greater bird-of-paradise, including some events causing unsuccessful lekking

This study showed that successful lekking has a low probability. The mating event was only observed in one male. One of the behavioral patterns in lek mating in birds includes uneven mating success among the male participants in a lek (Beehler 1983, 1987). In species with polygynous lek mating systems, successful mating was dependent on female choice (Vervoort and Kempenaers 2019). High variability in mating success was also found in another bird-of-paradise, Lawe's parotia (*Parotia lawesii*), which was influenced by female choice but not by interactions between males (Pruett-Jones and Pruett-Jones 1990). In this study, the percentage of successful lekking cannot be assessed due to a limited sample size in the field.

Asides from the lek success, many other ecological details remain unknown, including female nest and nesting behavior (Pratt and Beehler 2015), food composition, roosting trees used by females, and many more. Difficult access to the southern lowland forest of Papua might be the biggest challenge to research on this species. Moreover, many areas in the southern lowlands are managed by local communities through traditional tribal rights ('*hak ulayat*'), and conducting long-term research on the species requires more dialogue and engagement to obtain permission from the local people.

Implications for conservation

Mating systems affect reproductive success; therefore, they play a critical role in conservation biology by shaping population trends. Gaining insight into these systems helps us understand how species cope with environmental changes and potential population declines (Kempnaers 2022). Low successful mating in lekking males of the greater bird-of-paradise might negatively affect the survival of the population through reproductive success. Unfortunately, information on the reproduction of this species, which includes clutch size, breeding rhythm, and breeding success, is still lacking.

Forest cover change is one of the major threats to the survival of birds-of-paradise. Scholes (2020) reported that threats to the birds-of-paradise came from increased infrastructure, especially roads, and the disappearance of forest habitat. However, the selective logging system implemented by Inocin Abadi logging company at the research site enables the retention of important trees and suitable habitat for the greater bird-of-paradise and other bird species, although this does not mean that implementing a selective logging system in all areas can ensure the retention of important habitat for wildlife. Setting aside some big trees as mother trees would be beneficial to this species, especially when the mother trees also serve as food trees and/or lek trees. Franca et al. (2024) showed that the negative effects of selective logging on birds in a neotropical forest were a decline in bird body mass. They argued that low-intensity selective logging stimulated the flowering and fruiting of trees as a result of foraging birds.

Another major threat to the greater bird-of-paradise is hunting. Calls of the males of the greater bird-of-paradise were loud, repeated over and over, and conducted during the breeding season in the morning and late afternoon. This habit is predictable, making this species highly prone to illegal hunting. Although this species is already protected by Indonesian law, there has been some indication (Mardiastuti and Mulyani 2024a) that this bird is still illegally hunted.

The discovery of birds-of-paradise at the research site presents valuable prospects for species conservation in the region. This bird is relatively large for a canopy bird, so it fulfills one of the requirements of a charismatic species (Berti et al. 2020; Prokop et al. 2022). Their relatively large size, striking feathers, and distinctive behaviors make them particularly appealing to the public. Charismatic species are frequently used to attract funding and community involvement in biodiversity conservation, a strategy that is already well-recognized, particularly given that funding for biodiversity conservation is limited (Macdonald et al. 2015; Colleony et al. 2017; Krause and Robinson 2017).

It is necessary to include the participation of local people in the conservation efforts of this species (Raunsay et al. 2025). Developing an avitourism program based on the greater bird-of-paradise could be one alternative to promote the conservation of this species and the more generally, the biodiversity of the region. Bird behavior, especially unique behavior during breeding, is one of the

potential attractions for birdwatchers (Mardiastuti and Mulyani 2024b).

In conclusion, the greater bird-of-paradise in South Papua was observed lekking on tall emergent trees with open canopies in post-logging lowland forest. Males initiated displays by calling from prominent branches, attracting other males and occasionally females, although only a few copulations were recorded. These findings indicate that lekking success is limited and strongly dependent on female choice. Hunting remains a major threat, as the predictable calls of males during the breeding season make them highly vulnerable. Protecting lek habitats is therefore essential. Conservation measures should include delineating and safeguarding lek trees within logging concessions, promoting community involvement, and developing avitourism to provide alternative livelihoods. As a charismatic flagship species, the greater bird-of-paradise has strong potential to support both biodiversity conservation and sustainable development in South Papua. These efforts should be communicated to loggers by management, as it is not typically included in current logging regulations enforced in the field.

ACKNOWLEDGEMENTS

We would like to thank Vinoba Chandra, Nam Hong Kim, and all staff of Korindo Group, Indonesia, for their assistance in the field, as well as for their financial support. We also thank Tri Ananda Nur Iksan, Taufik Setiawan, Aronika Kaban, and Marcellia for their help in collecting data in the field. Lena Justriyaningsih also assisted us in preparing this paper. We thank Paul J. DuBowy for checking and commenting on the earlier draft of this manuscript, including checking the spelling and grammar. We are also grateful for the comments from anonymous reviewers; Alienda M. Fauzia beautifully did the drawings of the lekking positions. We thank M. Iqbal and Dewi P. Sari for helping us access some of the references. This study is a part of a larger study on the ecology of the bird-of-paradise in concession areas in South Papua Province, under the umbrella of collaborative research between the Faculty of Forestry and Environment, Institut Pertanian Bogor, Indonesia, and Korindo Group-Tunas Sawa Erma Group.

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