

DAFTAR PUSTAKA

- Aguado, W. D., Bransford, T. D., Zulfa, A., & Vogel, E. R. (2020). A Staple Food Resource, *Leucomphalos Callicarpus*, May Temper Fluctuating Fruit Availability For Bornean Orangutans at Tuanan, Indonesia. *American Journal Of Physical Anthropology*, 171, 3–4.
- Alavi, S. E. (2018). Diet, Cognition, And Nutrient Balancing In An Orangutan Habitat. Rutgers University. Dissertation.
- Ancrenaz, M., Gumal, M., Marshall, A. J., Meijaard, E., Wich, S. A., & Husson, S. (2016). *Pongo pygmaeus* (Errata Version Published In 2018). The IUCN Red List of Threatened Species 2016: E. T17975A123809220.
- Ariyanto, T. (2015). Pola Ketersediaan Tumbuhan Berbuah dan Pemanfaatan Ruang Pada Orangutan Betina (*Pongo pygmaeus wurmbii*, Tiedemann 1808) Di Stasiun Penelitian Tuanan, Kalimantan Tengah. Universitas Indonesia. Tesis.
- Ashbury, A. M. (2020). Movement And Space-Use Among Bornean Orangutans. 142.
- Ashbury, A. M., Posa, M. R. C., Dunkel, L. P., Spillmann, B., Atmoko, S. S. U., van Schaik, C. P., & van Noordwijk, M. A. (2015). Why Do Orangutans Leave The Trees? Terrestrial Behavior Among Wild Bornean Orangutans (*Pongo pygmaeus wurmbii*) at Tuanan, Central Kalimantan. *American Journal Of Primatology*, 77(11), 1216–1229.
- Ashbury, A. M., Willems, E. P., Utami Atmoko, S. S., Saputra, F., Van Schaik, C. P., & Van Noordwijk, M. A. (2020). Home Range Establishment and The Mechanisms Of Philopatry Among Female Bornean Orangutans (*Pongo pygmaeus wurmbii*) At Tuanan. *Behavioral Ecology And Sociobiology*, 74(4), 1–21. <https://doi.org/10.1007/S00265-020-2818-1>.
- Astuti, I. P., Kusuma, Y. W. C., Yuswandi, A. Y., & Sunarti, S. (2021). Fenologi Perbungaan dan Pembuahan Serta Perkecambahan Biji *Syzygium Hirtum* (Korth.) Di Kebun Raya Bogor. *Buletin Kebun Raya*, 24(1), 20–27.
- Bastian, M. L., Zweifel, N., Vogel, E. R., Wich, S. A., & Van Schaik, C. P. (2010). Diet Traditions In Wild Orangutans. *American Journal Of Physical Anthropology*, 143(2), 175–187.
- Bohn, K., Pavlick, R., Reu, B., & Kleidon, A. (2014). The Strengths Of R-And K-Selection Shape Diversity-Disturbance Relationships. *Plos One*, 9(4), E95659.
- Bray, J., Emery Thompson, M., Muller, M. N., Wrangham, R. W., & Machanda, Z. P. (2018). The Development Of Feeding Behavior In Wild Chimpanzees (*Pan*

- troglydites schweinfurthii*). American Journal Of Physical Anthropology, 165(1), 34–46.
- BSN. (1992). Cara Uji Makanan Dan Minuman. Badan Standarisasi Nasional.
- Budianto, S., & Sukendah, S. (2023). Teknologi Pengendalian Serangga Penyerbuk Dan Konservasi Sebagai Salah Satu Indikator Keseimbangan Alam. Jurnal Ilmu Pertanian Dan Perkebunan, 5(1), 7–15.
- Dalimunthe, N. P., Alikodra, H. S., Iskandar, E., & Atmoko, S. S. U. (2020). Manajemen Pakan Dan Pemenuhan Nutrisi Orangutan Kalimantan (*Pongo pygmaeus*). Di Taman Safari Indonesia Dan Taman Margasatwa Ragunan. Jurnal Biologi Indonesia, 16(1).
- Diez, J. M., Ibáñez, I., Miller-Rushing, A. J., Mazer, S. J., Crimmins, T. M., Crimmins, M. A., Bertelsen, C. D., & Inouye, D. W. (2012). Forecasting Phenology: From Species Variability To Community Patterns. Ecology Letters, 15(6), 545–553.
- Digiorgio, A. L., Ma, Y., Upton, E. M., Gopal, S., Robinson, N. J., Susanto, T., & Knott, C. D. (2023b). Famished Frugivores or Choosy Consumers: A Generalist Frugivore (Wild Bornean Orangutans, *Pongo pygmaeus wurmbii*) Leaves Available Fruit For Nonfruit Foods. International Journal Of Primatology, 44(2), 377–398.
- Digiorgio, A. L., Susanto, T. W., & Knott, C. D. (2021). Behavioral Evidence of Wild Bornean Orangutans Navigating To Non-Fruit Foods—Implications For Fallback Foods. American Journal of Physical Anthropology, 174(S71).
- Ditjen KSDAE, K. L. H. Dan K. R. I. (2019). Strategi Dan Rencana Aksi Konservasi Orangutan Indonesia 2019-2023. Forum Orangutan Indonesia.
- DPR RI, Undang-Undang Republik Indonesia No 5 Tahun 1990 Tentang Konservasi Sumber Daya Alam Hayati Dan Ekosistemnya (1990). www.djpp.depkuham.go.id.
- Dunkel, L. P., Arora, N., van Noordwijk, M. A., Atmoko, S. S. U., Putra, A. P., Krützen, M., & van Schaik, C. P. (2013). Variation In Developmental Arrest Among Male Orangutans: A Comparison Between A Sumatran And A Bornean Population. Frontiers In Zoology, 10(1), 1–11. <https://doi.org/10.1186/1742-9994-10-12>.
- Farhana, M. (2023). Perilaku Makan dan Kandungan Nutrisi Makanan Orangutan Anak (*Pongo pygmaeus wurmbii*) Di Stasiun Penelitian Orangutan Tuanan, Kalimantan Tengah [Skripsi (Unpublished)]. Universitas Nasional.
- Harrison, M. E., Morrogh-Bernard, H. C., & Chivers, D. J. (2010). Orangutan Energetics and The Influence of Fruit Availability In The Nonmasting Peat-Swamp Forest Of Sabangau, Indonesian Borneo. International Journal Of Primatology, 31, 585–607.

- Harrison, M. E., Vogel, E. R., Morrogh-Bernard, H. C., & Van Noordwijk, M. A. (2009). Methods For Calculating Activity Budgets Compared: A Case Study Using Orangutans. *American Journal Of Primatology: Official Journal Of The American Society Of Primatologists*, 71(4), 353–358.
- Harrison, M. E., Zweifel, N., Husson, S. J., Cheyne, S. M., D’Arcy, L. J., Harsanto, F. A., Morrogh-Bernard, H. C., Purwanto, A., Rahmatd, & Santiano. (2016). Disparity In Onset Timing And Frequency Of Flowering And Fruiting Events In Two Bornean Peat-Swamp Forests. *Biotropica*, 48(2), 188–197.
- Hasan, S. (2020). Strategi Efisiensi Makan Orangutan Kalimantan (*Pongo pygmaeus wurmbii*) Pasca Kebakaran Hutan [Undergraduate Thesis (Unpublished)]. Universitas Nasional.
- Hernando-Herraez, I., Heyn, H., Fernandez-Callejo, M., Vidal, E., Fernandez-Bellon, H., Prado-Martinez, J., Sharp, A. J., Esteller, M., & Marques-Bonet, T. (2015). The Interplay Between DNA Methylation and Sequence Divergence In Recent Human Evolution. *Nucleic Acids Research*, 43(17), 8204–8214.
- Janna, M., & Pasau, N. S. (2022). Analisis Proksimat Pakan Ikan Di Balai Budidaya Air Payau Takalar. *Filogeni: Jurnal Mahasiswa Biologi*, 2(3), 86–90.
- Kane, E. E., Susanto, T. W., & Knott, C. D. (2021). Developmental Tradeoffs: Fruit Availability And Offspring Age Influence Mother and Offspring Activity In Bornean Orangutans (*Pongo pygmaeus wurmbii*). *American Journal Of Physical Anthropology*, 174(S71).
- Kehrberger, S., & Holzschuh, A. (2019). How Does Timing Of Flowering Affect Competition For Pollinators, Flower Visitation and Seed Set in an Early Spring Grassland Plant? *Scientific Reports*, 9(1), 15593.
- KLHK, (2018).
https://ksdae.menlhk.go.id/Assets/News/Peraturan/P.20_Jenis_TSL_.Pdf
- Kurniawan, A. (2020). Evaluasi Pengukuran Curah Hujan Antara Hasil Pengukuran Permukaan (Aws, Hellman, Obs) dan Hasil Estimasi (Citra Satelit= Gsm) Di Stasiun Klimatologi Mlati Tahun 2018. *Jurnal Geografi, Edukasi Dan Lingkungan (JGEL)*, 4(1), 1–7.
- Kurniawan, K. (2020). Pengertian Cuaca Menurut BMKG. Badan Meteorologi Klimatologi dan Geofisika. <https://maritim.kalbar.bmkg.go.id/Konten/Pengertian-Cuaca/>.
- Kuswanda, W. (2014). Orangutan Batang Toru: Kritis Di Ambang Punah [Batang Toru Orangutan: Critically On The Threshold Of Extinction]. Bogor, Indonesia: FORDA Press.

- Kuze, N., Malim, T. P., & Kohshima, S. (2005). Developmental Changes In The Facial Morphology Of The Borneo Orangutan (*Pongo Pygmaeus*): Possible Signals In Visual Communication. *American Journal Of Primatology: Official Journal Of The American Society Of Primatologists*, 65(4), 353–376.
- Lambert, J. E., & Rothman, J. M. (2015). Fallback Foods, Optimal Diets, And Nutritional Targets: Primate Responses To Varying Food Availability and Quality. *Annual Review Of Anthropology*, 44, 493–512.
- Laumer, I. B., Auersperg, A. M. I., Bugnyar, T., & Call, J. (2019). Orangutans (*Pongo abelii*) Make Flexible Decisions Relative To Reward Quality and Tool Functionality In A Multi-Dimensional Tool-Use Task. *Plos One*, 14(2), E0211031.
- Liang, L. (2019). A spatially explicit modeling analysis of adaptive variation in temperate tree phenology. *Agricultural and Forest Meteorology*, 266, 73-86.
- Liu, Y., Francis, R. A., Wooster, M. J., Grosvenor, M. J., Yan, S., & Roberts, G. (2022). Systematic Mapping and Review of Landscape Fire Smoke (LFS) Exposure Impacts on Insects. *Environmental Entomology*, 51(5), 871–884.
- Loken, B., Spehar, S., & Rayadin, Y. (2013). Terrestriality in the Bornean Orangutan (*Pongo pygmaeus morio*) and Implications For Their Ecology and Conservation. *American Journal Of Primatology*, 75(11), 1129–1138.
- Makur, K. P. (2019). Ekologi Liana sebagai Pakan Orangutan (*Pongo pygmaeus wurmbii*) Di Stasiun Penelitian Orangutan Tuanan, Kalimantan Tengah. Universitas Nasional.
- Marlier, M. E., Defries, R. S., Voulgarakis, A., Kinney, P. L., Randerson, J. T., Shindell, D. T., Chen, Y., & Faluvegi, G. (2013). El Niño and Health Risks From Landscape Fire Emissions In Southeast Asia. *Nature Climate Change*, 3(2), 131–136.
- Marshall, A. J., Ancrenaz, M., Brearley, F. Q., Fredriksson, G. M., Ghaffar, N., Heydon, M., Husson, S. J., Leighton, M., Mcconkey, K. R., & Morrogh-Bernard, H. C. (2009). The Effects Of Forest Phenology And Floristics On Populations Of Bornean And Sumatran Orangutans. *Orangutans: Geographic Variation In Behavioral Ecology and Conservation*. Oxford University Press, Oxford, 97–118.
- Marshall, A. J., Boyko, C. M., Feilen, K. L., Boyko, R. H., & Leighton, M. (2009). Defining Fallback Foods And Assessing Their Importance In Primate Ecology and Evolution. *American Journal Of Physical Anthropology: The Official Publication Of The American Association Of Physical Anthropologists*, 140(4), 603–614.
- Matthewman, M. C., & Costa-Pinto, R. (2023). Macronutrients, Minerals, Vitamins and Energy. *Anaesthesia & Intensive Care Medicine*.

- Mikeliban, M., Kunz, B., Rahmaeti, T., Uomini, N., & Schuppli, C. (2021). Orangutan Mothers Adjust Their Behaviour During Food Solicitations In A Way That Likely Facilitates Feeding Skill Acquisition In Their Offspring. *Scientific Reports*, 11(1), 23679.
- Morrogh-Bernard, H. C., Husson, S. J., Knott, C. D., Wich, S. A., Van Schaik, C. P., Van Noordwijk, M. A., Lackman-Ancrenaz, I., Marshall, A. J., Kanamori, T., & Kuze, N. (2009). Orangutan Activity Budgets And Diet. *Orangutans: Geographic Variation In Behavioral Ecology and Conservation*, 119–133.
- Nater, A., Mattle-Greminger, M. P., Nurcahyo, A., Nowak, M. G., De Manuel, M., Desai, T., Groves, C., Pybus, M., Sonay, T. B., & Roos, C. (2017). Morphometric, Behavioral, and Genomic Evidence For A New Orangutan Species. *Current Biology*, 27(22), 3487–3498.
- Nowak, M. G., Rienzi, P., Wich, S. A., Meijaard, E., & Fredriksson, G. (2017). The IUCN Red List of Threatened Species 2017. *Pongo Tapanuliensis*, 3.
- O'Connell, C. A., Digiorgio, A. L., Ugarte, A. D., Brittain, R. S. A., Naumenko, D. J., Utami Atmoko, S. S., & Vogel, E. R. (2021). Wild Bornean Orangutans Experience Muscle Catabolism During Episodes Of Fruit Scarcity. *Scientific Reports*, 11(1), 10185.
- Palinkas, M., Nassar, M. S. P., Cecílio, F. A., Siéssere, S., Semprini, M., Machado-De-Sousa, J. P., Hallak, J. E. C., & Regalo, S. C. H. (2010). Age and Gender Influence On Maximal Bite Force and Masticatory Muscles Thickness. *Archives Of Oral Biology*, 55(10), 797–802.
- Piao, S., Liu, Q., Chen, A., Janssens, I. A., Fu, Y., Dai, J., Liu, L., Lian, X. U., Shen, M., & Zhu, X. (2019). Plant Phenology and Global Climate Change: Current Progresses and Challenges. *Global Change Biology*, 25(6), 1922–1940.
- Pontzer, H., Brown, M. H., Raichlen, D. A., Dunsworth, H., Hare, B., Walker, K., Luke, A., Dugas, L. R., Durazo-Arvizu, R., & Schoeller, D. (2016). Metabolic Acceleration and The Evolution Of Human Brain Size And Life History. *Nature*, 533(7603), 390–392.
- Pontzer, H., Raichlen, D. A., Gordon, A. D., Schroepfer-Walker, K. K., Hare, B., O'Neill, M. C., Muldoon, K. M., Dunsworth, H. M., Wood, B. M., & Isler, K. (2014). Primate Energy Expenditure and Life History. *Proceedings of The National Academy Of Sciences*, 111(4), 1433–1437.
- Pontzer, H., Raichlen, D. A., Shumaker, R. W., Ocobock, C., & Wich, S. A. (2010). Metabolic Adaptation For Low Energy Throughput In Orangutans. *Proceedings Of The National Academy Of Sciences*, 107(32), 14048–14052.

- Prasetyo, D. (2019). Understanding Bimaturism: The Influence Of Social Conditions, Energy Intake, and Endocrinological Status on Flange Development In Bornean Orangutans (*Pongo pygmaeus wurmbii*).
- Prayogo, H., Thohari, A. M., Sholihin, D. D., & Prasetyo, L. B. (2014). Karakter Kunci Pembeda Antara Orangutan Kalimantan (*Pongo pygmaeus*) Dengan Orangutan Sumatera (*Pongo abelii*). *Bionatura*, 16(1).
- Rachmadiyanto, A. (2018). Peran Pengamatan Cuaca Dalam Menunjang Data Penelitian Di Kebun Raya. *Warta Kebun Raya*.
- Rahmaeti, T. (2022). Perilaku Makan Dan Asupan Energi Orangutan Sumatra (*Pongo abelii*) Jantan Dewasa Di Stasiun Penelitian Suaq Balimbing, Taman Nasional Gunung Leuser, Aceh Selatan. Universitas Nasional.
- Rapaport, L. G., & Brown, G. R. (2008). Social Influences on Foraging Behavior In Young Nonhuman Primates: Learning What, Where, And How To Eat. *Evolutionary Anthropology: Issues, News, And Reviews: Issues, News, And Reviews*, 17(4), 189–201.
- Roberts, G., & Wooster, M. J. (2021). Global Impact Of Landscape Fire Emissions On Surface Level PM_{2.5} Concentrations, Air Quality Exposure and Population Mortality. *Atmospheric Environment*, 252, 118210.
- Roos, C., Boonratana, R., Supriatna, J., Fellowes, J. R., Groves, C. P., Nash, S. D., Rylands, A. B., & Mittermeier, R. A. (2014). An Updated Taxonomy And Conservation Status Review Of Asian Primates. *Asian Primates Journal*.
- Rothwell, M. (2016). Selection Of Tree Species For Cambium Consumption By The Bornean Orangutan (*Pongo pygmaeus wurmbii*). In Dissertation. University Of Cambridge.
- Santosa, Y., & Rahman, D. A. (2012). Ketelitian Metode Sarang Untuk Pendugaan Populasi Orangutan Dan Penentuan Faktor Ekologi Penting Dalam Manajemen Hutan Konservasi. *Jurnal JMHT*, 18(1).
- Saputra, F. (2018). Daerah Jelajah Orangutan (*Pongo pygmaeus wurmbii*) Remaja Berdasarkan Ketersediaan Tumbuhan Berbuah Di Stasiun Penelitian Orangutan Tuanan, Kalimantan Tengah. Institut Pertanian Bogor.
- Saputra, F., Perwitasari-Farajallah, D., Utami-Atmoko, S. S., Ariyanto, T., & Van Noordwijk, M. A. (2017). Monthly Range Of Adolescent Orangutans (*Pongo pygmaeus wurmbii*) Based On Fruit Availability In Tuanan Orangutan Research Station, Central Kalimantan, Indonesia. *Biodiversitas Journal Of Biological Diversity*, 18(4), 1445–1452.

- Schuppli, C., Atmoko, S. S. U., Vogel, E. R., van Schaik, C. P., & van Noordwijk, M. A. (2021). The Development And Maintenance Of Sex Differences In Dietary Breadth And Complexity In Bornean Orangutans. *Behavioral Ecology and Sociobiology*, 75(5), 81.
- Schuppli, C., Forss, S. I. F., Meulman, E. J. M., Zweifel, N., Lee, K. C., Rukmana, E., Vogel, E. R., van Noordwijk, M. A., & van Schaik, C. P. (2016). Development Of Foraging Skills In Two Orangutan Populations: Needing To Learn Or Needing To Grow? *Frontiers In Zoology*, 13(1), 3–5. <https://doi.org/10.1186/S12983-016-0178-5>.
- Setia, T. M., Delgado, R. A., Atmoko, S. S. U., Singleton, I., & Van Schaik, C. P. (2009). Social Organization and Male-Female Relationships. *Orangutans–Geographic Variation In Behavioral Ecology And Conservation*, 245–253.
- Setianingarum, H. D. (2020). Variasi Kandungan Nutrien Pakan dan Asupan Energi Orangutan Kalimantan (*Pongo pygmaeus wurmbii*) Di Stasiun Penelitian Orangutan Tuanan. Universitas Nasional.
- Shanahan, M., & Spivak, M. (2021). Resin Use By Stingless Bees: A Review. *Insects*, 12(8), 719.
- Singleton, I., Knott, C. D., Morrogh-Bernard, H. C., Wich, S. A., van Schaik, C. P., Utami Atmoko, S. S., & Mitra Setia, T. (2009). Ranging Behavior Of Orangutan Females and Social Organization.
- Singleton, I., & van Schaik, C. P. (2001). Orangutan Home Range Size and Its Determinants In A Sumatran Swamp Forest. *International Journal Of Primatology*, 22, 877–911.
- Singleton, I., Wich, S. A., Nowak, M., Usher, G., & Utami-Atmoko, S. S. (2017). *Pongo abelii* (Errata Version Published In 2018). The IUCN Red List Of Threatened Species 2017: E. T121097935A123797627.
- Susilo, B. (2021). Mengenal Iklim Dan Cuaca Di Indonesia (Yanuar, Ed.; Pertama). DIVA Press.
- Suychinov, A., Rebezov, M., Maksimiuk, N., Khayrullin, M., Kulikov, D., Konovalov, S., Konovalova, O., Penkova, I., & Moldabayeva, Z. (2019). Vitamins And Their Role In Human Body. *International Journal Of Pharmaceutical Research* (09752366), 11(3).
- Tan, Y. Q., Dion, E., & Monteiro, A. (2018). Haze Smoke Impacts Survival and Development Of Butterflies. *Scientific Reports*, 8(1), 15667.

- Tarigan, M. N. (2013). Hubungan Kelimpahan Pakan Dengan Lama Waktu Aktivitas Makan Orangutan Sumatera (*Pongo abelii*) Di Stasiun Penelitian Batang Toru Blok Barat Sumatera Utara. Universitas Sumatera Utara.
- Tribe, G., Tautz, J., Sternberg, K., & Cullinan, J. (2017). Firewalls In Bee Nests— Survival Value Of Propolis Walls Of Wild Cape Honeybee (*Apis Mellifera Capensis*). *The Science Of Nature*, 104(3–4), 29.
- Utami Atmoko, S. S., Rifqi, M. A., & Gondanisam. (2012). Panduan Lapangan Pengenalan Mamalia dan Burung Dilindungi Di Sumatera Dan Kalimantan. Forum Orangutan Indonesia, Bogor, Indonesia.
- Utami-Atmoko, S. S., Traylor-Holzer, K., Rifqi, M. A., Siregar, P. G., Achmad, B. S., Priadjati, A., Husson, S. J., Wich, S. A., Hadisiswoyo, P., Saputra, F., Campbell-Smith, G., Kuncoro, P., Russon, A., Voigt, M., Santika, T., Nowak, M., Singleton, I., Sapari, I., & Chandradewi, D. S. (2017). Orangutan Population And Habitat Viability Assessment (PHVA).
- van Noordwijk, M. A., Arora, N., Willems, E. P., Dunkel, L. P., Amda, R. N., Mardianah, N., Ackermann, C., Krützen, M., & Van Schaik, C. P. (2012). Female Philopatry and Its Social Benefits Among Bornean Orangutans. *Behavioral Ecology and Sociobiology*, 66, 823–834.
- van Noordwijk, M. A., Atmoko, S. S. U., Knott, C. D., Kuze, N., Morrogh-Bernard, H. C., Oram, F., Schuppli, C., van Schaik, C. P., & Willems, E. P. (2018). The Slow Ape: High Infant Survival And Long Interbirth Intervals In Wild Orangutans. *Journal Of Human Evolution*, 125, 38–49.
- van Noordwijk, M. A., Labarge, L. R., Kunz, J. A., Marzec, A. M., Spillmann, B., Ackermann, C., Rianti, P., Vogel, E. R., Atmoko, S. S. U., & Krutzen, M. (2023). Reproductive Success Of Bornean Orangutan Males: Scattered In Time But Clustered In Space. *Behavioral Ecology And Sociobiology*, 77(12), 134.
- van Schaik, C. P., & van Duijnhoven, P. (2006). Diantara Orangutan Kera Merah Dan Bangkitnya Kebudayaan Manusia. The Borneo Orangutan Survival Foundation, Jakarta.[Indonesian].
- van Schaik, C. P., van Noordwijk, M. A., & Vogel, E. R. (2009). Ecological Sex Differences In Wild Orangutans. *Orangutans: Geographic Variation In Behavioral Ecology And Conservation*, 49–64.
- van Schaik, & van Noordwijk. (2002). Standardized Field Methods. Zurich University.
- Vogel, E. R., Alavi, S. E., Utami-Atmoko, S. S., Van Noordwijk, M. A., Bransford, T. D., Erb, W. M., Zulfa, A., Sulisty, F., Farida, W. R., & Rothman, J. M. (2017). Nutritional Ecology Of Wild Bornean Orangutans (*Pongo pygmaeus wurmbii*) In A

- Peat Swamp Habitat: Effects Of Age, Sex, and Season. *American Journal Of Primatology*, 79(4), 1–20.
- Vogel, E. R., Haag, L., Mitra-Setia, T., Van Schaik, C. P., & Dominy, N. J. (2009). Foraging And Ranging Behavior During A Fallback Episode: *Hylobates albibarbis* and *Pongo pygmaeus wurmbii* Compared. *American Journal Of Physical Anthropology*, 140(4), 716–726. <https://doi.org/10.1002/Ajpa.21119>.
- Vogel, E. R., Harrison, M. E., Zulfa, A., Bransford, T. D., Alavi, S. E., Husson, S., Morrogh-Bernard, H., Santiano, Firtsman, T., & Utami-Atmoko, S. S. (2015). Nutritional Differences Between Two Orangutan Habitats: Implications For Population Density. *Plos One*, 10(10), E0138612.
- Vogel, E. R., Knott, C. D., Crowley, B. E., Blakely, M. D., Larsen, M. D., & Dominy, N. J. (2012). Bornean Orangutans On The Brink Of Protein Bankruptcy. *Biology Letters*, 8(3), 333–336.
- Vogel, E. R., van Woerden, J. T., Lucas, P. W., Atmoko, S. S. U., Van Schaik, C. P., & Dominy, N. J. (2008). Functional Ecology And Evolution Of Hominoid Molar Enamel Thickness: *Pan troglodytes schweinfurthii* And *Pongo pygmaeus wurmbii*. *Journal of Human Evolution*, 55(1), 60–74.
- Vogel, E. R., Zulfa, A., Hardus, M., Wich, S. A., Dominy, N. J., & Taylor, A. B. (2014). Food Mechanical Properties, Feeding Ecology, and the Mandibular Morphology Of Wild Orangutans. *Journal Of Human Evolution*, 75, 110–124.
- Wich, S. A., Utami-Atmoko, S. S., Setia, T. M., Rijksen, H. D., Schürmann, C., Van Hooff, J., & Van Schaik, C. P. (2004). Life History Of Wild Sumatran Orangutans (*Pongo abelii*). *Journal of Human Evolution*, 47(6), 385–398.
- Wich, S. A., Vogel, E. R., Larsen, M. D., Fredriksson, G., Leighton, M., Yeager, C. P., Brearley, F. Q., Van Schaik, C. P., & Marshall, A. J. (2011). Forest Fruit Production Is Higher on Sumatra than on Borneo. *Plos One*, 6(6), E21278.
- Widayati, K. A., & Rianti, P. (2023). Activity Budget and Diet In Sumatran Orangutan (*Pongo abelii*) At Soraya Research Station, Aceh. *Hayati Journal Of Biosciences*, 30(4), 653–661.
- Widowati, R., Maulana, R. G., & Atmoko, S. S. U. (N.D.). Inventory Of Stingless Bees Based On Nesting And Nest Trees At Tuanan Orangutan Research Station Central Kalimantan Indonesia. *European Chemical Bulletin*, 12.
- Willis, C. G., Ellwood, E. R., Primack, R. B., Davis, C. C., Pearson, K. D., Gallinat, A. S., Yost, J. M., Nelson, G., Mazer, S. J., & Rossington, N. L. (2017). Old Plants, New Tricks: Phenological Research Using Herbarium Specimens. *Trends In Ecology & Evolution*, 32(7), 531–546.

- Winarni, N. L., Kurniasari, D. R., Hartiningtias, D., Nuslawo, M., & Sakuntaladewi, N. (2016). Phenology, Climate, and Adaptation: How Does Dipterocarps Respond To Climate? *Indonesian Journal Of Forestry Research*, 3(2), 129–141.
- Yoza, D., Pareng, R., & Usman, M. T. (2013). Identifikasi Jenis Lebah Trigona dan Sebarannya Di Taman Nasional Tesso Nilo Dan Sekitarnya. Ur Press. Pekanbaru.
- Yudha, & Utami, A. S. S. (2018). Struktur, Komposisi Dan Pertumbuhan Permudaan Endemik Rawa Gambut Pada Lahan Bekas Kebakaran Di Stasiun Penelitian Orangutan Tuanan, Kalimantan Tengah. *Hutan Tropika*, XIII, 1–9.
- Zulfa, A. (2006). Aktivitas Harian, Komposisi Makanan dan Kandungan Nutrien Dari Makanan Utama Orangutan (*Pongo pygmaeus wurmbii*) Betina Yang Memiliki Anak Dengan Umur Berbeda Di Stasiun Penelitian Tuanan, Kalimantan Tengah. [Unpublished]. Universitas Nasional.
- Zulfa, A. (2011). Perilaku Makan Dan Kandungan Nutrien Makanan Orangutan Sumatera (*Pongo abelii*) Di Stasiun Penelitian Ketambe, Taman Nasional Gunung Leuser, Nanggroe Aceh Darussalam. Universitas Indonesia.



LAMPIRAN

Lampiran 1. Daftar jenis makanan orangutan selama penelitian di SPOT

No	Nama Lokal	Spesies	Buah	Daun muda	Daun tua	Bunga	Kambium	Vegetasi
1	Akar Dangu	<i>Willughbeia sp.</i>	√	√		√		
2	Akar Kambalitan	<i>Artabotrys sp.</i>	√					
3	Akar Kamunda	<i>Leuchompallos callicarpus</i>	√	√	√	√		
4	Akar Kecil	<i>Dischidia sp.</i>		√	√			√
5	Akar Kelakai	<i>Stenochlaena palustris</i>		√				√
6	Akar Kelanis	<i>Alyxia sp</i>		√	√			√
7	Akar Kuku Elang	<i>Ziziphus spp</i>	√					
8	Akar Kuning	<i>Fibraurea tinctoria</i>	√					
9	Akar Pari-pari	<i>Uvaria sp</i>	√					
10	Akar Pisang-pisang	<i>Lauraceae</i>	√					
11	Akar Takapal	<i>Hoya sp</i>						√
12	Akar Tampelas	<i>Gnetum sp</i>	√					
13	Akar Uwei Nyamei	<i>Flagellaria indica</i>						√
14	Bengaris	<i>Koompassia malaccensis</i>	√	√			√	
15	Bintan	<i>Licania splendens</i>						√
16	Damon	<i>Xerospermum noronhianum</i>	√					
17	Enyak Beruk	<i>Kayea sp.</i>	√					
18	Galam Tikus	<i>Syzygium curtisii</i>	√					
19	Gandis	<i>Garcinia parvifolia</i>	√					
20	Gerising	<i>Pandanus sp</i>	√					√
21	Hangkang	<i>Palaquium leiocarpum</i>	√					
22	Kajalaki Hatue	<i>Aglaiia sp.</i>	√					
23	Kambalitan	<i>Mezzettia parviflora</i>	√					
24	Kambalitan Putih	<i>Mezzettia sp</i>	√					
25	Kambasira	<i>Ilex maingayi</i>	√					
26	Kamehas	<i>Cryptocarya sp.</i>	√					
27	Kamehas daun perak	<i>Cryptocarya crassinervia</i>	√					
28	Kamuning	<i>Xanthophyllum ecarinatum</i>		√	√			√
29	Kapurnaga Jankar	<i>Calophyllum sp.</i>	√					
30	Kapurnaga Kakal	<i>Calophyllum sp.</i>		√				
31	Karandau Putih	<i>Blumeodendron kurzii</i>	√					
32	Katiau	<i>Madhuca motleyana</i>	√	√		√		
33	Kayu Sapat	<i>Santiria laevigata</i>	√					

34	Keput Bajuku	<i>Stemonurus scorpioides</i>	√					
35	Keranji	<i>Dialium indum</i>		√				
36	Kumpang Daun Hijau	<i>Gymnacranthera farquhariana</i>	√					
37	Lewang	<i>Pouteria malaccensis</i>	√	√	√	√		
38	Lunuk	<i>Ficus sp.</i>	√					
39	Lunuk Beringin	<i>Ficus benjamina L.</i>	√					
40	Lunuk Besar	<i>Ficus sp.</i>	√	√				
41	Lunuk Kecil	<i>Ficus sp.</i>	√	√				
42	Lunuk Tanah	<i>Ficus sp.</i>		√	√			
43	Lunuk Ungu	<i>Ficus sp.</i>	√					
44	Madang Rambut Merah	<i>Ctenolophon parvifolius</i>	√					
45	Mahadingan	<i>Calophyllum nodosum</i>	√					
46	Mahawai 2	<i>Polyalthia hypoleuca</i>	√					
47	Mahawai umb	<i>Mezzettia umbellata</i>	√					
48	Manggis hutan daun besar	<i>Garcinia beccarii</i>	√	√	√			
49	Manggis hutan daun kecil	<i>Garcinia bancana</i>	√	√	√	√		
50	Mangkinang Blawau	<i>Elaeocarpus mastersii</i>	√	√		√		
51	Maruang	<i>Myristica</i>	√				√	√
52	Nyatoh Puntik	<i>Palaquium pseudocuneatum</i>	√	√		√		
53	Nyatoh Undus Buah Besar	<i>Palaquium cochlearifolium</i>	√			√		
54	Nyatoh Undus Buah Merah	<i>Palaquium ridleyi</i>	√			√		
55	Nyatoh Undus Daun Ujung	<i>Payena leerii</i>	√					
56	Pakan	<i>Paratocarpus venenosa</i>	√					
57	Pampaning	<i>Lithocarpus conocarpus</i>	√					
58	Pantung	<i>Dyera lowii</i>	√		√	√	√	√
59	Papung	<i>Sandoricum koetjape</i>	√		√			
60	Pendo	<i>Sterculia sp.</i>		√		√		
61	Piais	<i>Nephelium mangayi</i>	√					
62	Pinding pandan	<i>Diospyros siamang</i>	√	√	√		√	
63	Rahanjang Bawi	<i>Xylopiya malayana</i>	√					
64	Rambutan Hutan	<i>Nephelium sp.</i>	√					
65	Rayap							
66	Rengas Parei	<i>Buchanania sessifolia</i>	√					
67	Rewui	<i>Microcos sp</i>	√					
68	Semut							

69	Tagula	<i>Litsea angulata</i>	√					
70	Tampang	<i>Artocarpus sp.</i>	√					
71	Tantimun	<i>Tetramerista glabra</i>	√					
72	Tapuhut Putih	<i>Syzygium sp.</i>	√					
73	Tarantang	<i>Camptosperma coriaceum</i>	√					
74	Tatumbu	<i>Syzygium sp.</i>					√	
75	Tatumbu Kasar	<i>Syzygium sp.</i>	√					
76	Tatumbu Putih	<i>Syzygium caudatum</i>			√			
77	Tukun	<i>Amyema sp</i>				√		
78	Tutup Kabali	<i>Diospyros pseudomalabarica</i>	√	√	√			
79	Ulat Hangkang							



Lampiran 2. Daftar jenis makanan dominan di SPOT



Garcinia bancana



Elaeocarpus mastersii



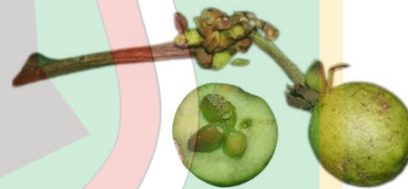
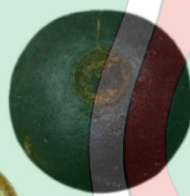
Diospyros pseudomalabarica



Camptosperma coriaceum



Mezzetia umbellata



Tetramerista glabra



Ficus sp.



Pouteria malaccensis





Bunga dan daun
Leuchomphallos callicarpus



Buah, bunga, dan daun
Artabotrys sp.



Daun muda *Pouteria malaccensis*



Vegetasi *Dischidia hirsuta*



Pith *Dyera lowii*



Kambium *Palaquium, Ficus* sp

Keterangan untuk Lampiran 3 sd 37

Kode signifikan: 0 (*)**; **0,001 (**)**; **0,01(*)**; **0,05 (·)**

Lampiran 3. Analisis statistik uji spearman curah hujan terhadap FAI

Variabel	<i>rho</i>	<i>p-value</i>	
A (2010-2015)	0.210	0.077	·
B (2015) Fase kebakaran	-0.929	0.002	*
C (2016-2019)	0.040	0.808	
D (2019) Fase kebakaran	-0.476	0.074	·
E (2020-2021)	0.460	0.036	*

Lampiran 4. Analisis statistik uji GLMM akumulasi waktu makan FAI rendah

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	394.397	27.278	0.000	***
Jantan remaja	10.418	43.979	0.813	
Betina dewasa	-61.898	33.227	0.063	·
Betina transisi	-26.045	33.415	0.436	
Jantan transisi	-86.862	40.041	0.030	*
FAI	1.101	11.433	0.923	
FAI*Jantan remaja	-24.199	27.606	0.381	
FAI*Betina dewasa	27.194	19.664	0.017	*
FAI*Betina transisi	-1.301	16.292	0.936	
FAI*Jantan transisi	26.315	19.394	0.175	

Lampiran 5. Analisis statistik uji GLMM akumulasi waktu makan FAI tinggi

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	1547.230	681.910	0.233	
Betina transisi	-415.192	168.600	0.114	
Jantan transisi	-807.560	722.520	0.264	
Betina remaja	-900.790	712.140	0.206	
Betina dewasa	-1337.380	1025.140	0.192	
FAI	-136.670	79.950	0.087	·
FAI*Jantan transisi	87.910	86.210	0.308	
FAI*Betina remaja	103.900	85.050	0.222	
FAI*Betina dewasa	160.120	123.560	0.195	

Lampiran 6. Analisis statistik uji GLMM antara FAI rendah dengan buah

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	104.574	62.685	0.095	·
Jantan remaja	-126.921	97.277	0.191	
Betina dewasa	-111.715	52.474	0.033	*
Betina transisi	-154.590	55.365	0.005	***
Jantan transisi	-92.948	87.967	0.029	*
FAI	-4.954	43.656	0.060	·
FAI*Jantan remaja	56.248	69.367	0.0617	·
FAI*Betina dewasa	91.384	30.207	0.002	**
FAI*Betina transisi	105.318	28.829	0.000	***
FAI*Jantan transisi	76.441	62.672	0.022	*

Lampiran 7. Analisis statistik uji GLMM antara FAI tinggi dengan buah

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	62.980	51.300	0.078	•
Betina transisi	87.520	76.070	0.250	
Jantan transisi	195.300	59.810	0.001	**
Betina remaja	120.420	59.640	0.044	*
Betina dewasa	230.260	58.630	0.000	***
FAI	57.850	27.120	0.040	*
FAI*Jantan transisi	239.010	61.080	0.000	***
FAI*Betina remaja	203.100	78.890	0.014	*
FAI*Betina dewasa	253.620	56.440	0.000	***

Lampiran 8. Analisis statistik uji GLMM antara FAI rendah dengan daun muda

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	1.265	11.178	0.909	
Jantan remaja	34.537	19.143	0.071	•
Betina dewasa	20.675	9.765	0.340	
Betina transisi	10.736	10.704	0.315	
Jantan transisi	-5.215	16.443	0.751	
FAI	3.531	4.241	0.405	
FAI*Jantan remaja	-19.084	8.872	0.031	*
FAI*Betina dewasa	-5.533	5.433	0.308	
FAI*Betina transisi	-7.921	4.767	0.096	•
FAI*Jantan transisi	2.082	6.663	0.754	

Lampiran 9. Analisis statistik uji GLMM antara FAI tinggi dengan daun muda

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	1.69E-15	2.832	1.000	
Betina transisi	1.750	8.530	0.238	
Jantan transisi	4.290	3.640	0.837	
Betina remaja	9.080	3.820	0.017	*
Betina dewasa	1.023	3.360	0.761	
FAI	4.052	1.618	0.016	*
FAI*Jantan transisi	6.375	3.643	0.088	
FAI*Betina remaja	8.692	3.809	0.028	*
FAI*Betina dewasa	3.365	3.367	0.324	

Lampiran 10. Analisis statistik uji GLMM antara FAI rendah dengan daun tua

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	1.663	5.656	0.768	
Jantan remaja	52.752	9.095	6.64E-09	***
Betina dewasa	-0.679	7.881	0.931	
Betina transisi	8.013	8.086	0.321	
Jantan transisi	2.796	7.678	0.715	
FAI	-0.499	2.793	0.085	•
FAI*Jantan remaja	-23.664	6.447	2.42E-04	***
FAI*Betina dewasa	0.882	4.716	0.851	

FAI*Betina transisi	-3.338	3.968	0.400
FAI*Jantan transisi	-0.693	4.185	0.868

Lampiran 11. Analisis statistik uji GLMM antara FAI tinggi dengan daun tua

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>
Intercept	7.39E-12	3.289	1.000
Betina remaja	-7.34E-12	3.440	1.000
Betina dewasa	12.530	4.931	0.011 *
Betina transisi	-1.77E-12	0.811	1.000
Jantan transisi	-7.57E-12	3.49E+10	1.000
FAI	-8.61E-13	0.384	1.000
FAI*Betina remaja	8.55E-13	0.407	1.000
FAI*Betina dewasa	-1.512	0.593	0.010 *
FAI*Jantan transisi	8.84E-13	0.412	1.000

Lampiran 12. Analisis statistik uji GLMM antara FAI rendah dengan bunga

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>
Intercept	-39.868	25.631	0.120
Jantan remaja	43.466	37.934	0.252
Betina dewasa	-6.864	17.649	0.697
Betina transisi	92.018	19.105	0.146
Jantan transisi	37.617	35.901	0.295
FAI	40.726	20.956	0.052 •
FAI*Jantan remaja	-43.000	32.114	0.181
FAI*Betina dewasa	0.787	11.087	0.943
FAI*Betina transisi	-74.348	10.727	0.42
FAI*Jantan transisi	-37.370	29.928	0.212

Lampiran 13. Analisis statistik uji GLMM antara FAI tinggi dengan bunga

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>
Intercept	7.51E-11	152.000	1.000
Betina remaja	-93.700	227.900	0.556
Betina dewasa	426.000	227.900	0.061 •
Betina transisi	-1.79E-11	37.470	1.000
Jantan transisi	8.040	161.200	0.961
FAI	-8.76E-12	17.720	1.000
FAI*Betina remaja	13.640	18.820	0.468
FAI*Betina dewasa	-51.520	27.400	0.060 •
FAI*Jantan transisi	-0.9117	19.050	0.961

Lampiran 14. Analisis statistik uji GLMM antara FAI rendah dengan kambium

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>
Intercept	22.289	29.370	0.447
Jantan remaja	79.516	47.644	0.095 •
Betina dewasa	39.798	20.148	0.480

Betina transisi	-14.378	22.242	0.518
Jantan transisi	32.054	41.783	0.443
FAI	-6.337	14.571	0.664
FAI*Jantan remaja	-39.740	24.426	0.103
FAI*Betina dewasa	-25.600	11.247	0.230
FAI*Betina transisi	7.122	10.990	0.518
FAI*Jantan transisi	-19.200	20.791	0.356

Lampiran 15. Analisis statistik uji GLMM antara FAI tinggi dengan kambium

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	586.767	60.658	<2E-16	***
Betina remaja	-580.885	63.442	<2E-16	***
Betina dewasa	-586.767	90.945	1.10E-10	***
Betina transisi	-173.833	14.954	<2E-16	***
Jantan transisi	-586.767	64.328	<2E-16	***
FAI	-63.333	7.072	<2E-16	***
FAI*Betina remaja	62.599	7.509	<2E-16	***
FAI*Betina dewasa	63.333	10.933	6.92E-09	***
FAI*Jantan transisi	63.333	7.602	<2E-16	***

Lampiran 16. Analisis statistik uji GLMM antara FAI rendah dengan vegetasi

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	56.846	28.170	0.043	*
Jantan remaja	-336.989	27.149	<2E-16	***
Betina dewasa	342.870	28.349	<2E-16	***
Betina transisi	374.580	40.704	<2E-16	***
Jantan transisi	71.694	6.693	<2E-16	***
FAI	335.010	28.791	<2E-16	***
FAI*Jantan remaja	41.111	3.165	<2E-16	***
FAI*Betina dewasa	-41.845	3.361	<2E-16	***
FAI*Betina transisi	-45.657	4.893	<2E-16	***
FAI*Jantan transisi	-40.822	3.403	<2E-16	***

Lampiran 17. Analisis statistik uji GLMM antara FAI tinggi dengan vegetasi

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	56.846	28.170	0.043	*
Betina remaja	-20.386	48.051	0.671	
Betina dewasa	13.548	16.927	0.423	
Betina transisi	-6.581	19.638	0.737	
Jantan transisi	-12.110	41.475	0.770	
FAI	-20.842	11.142	0.061	•
FAI*Betina remaja	5.078	20.491	0.804	
FAI*Betina dewasa	-10.670	9.279	0.250	
FAI*Jantan transisi	3.293	8.806	0.708	

Lampiran 18. Analisis statistik uji GLMM antara FAI rendah dengan serangga

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	50.449	18.277	0.006	**
Jantan remaja	-49.810	28.924	0.085	.
Betina dewasa	-78.687	18.046	0.000	***
Betina transisi	-34.449	19.089	0.071	.
Jantan transisi	-51.196	25.356	0.043	*
FAI	-9.125	11.072	0.090	.
FAI*Jantan remaja	8.145	19.401	0.067	.
FAI*Betina dewasa	43.551	10.832	0.000	***
FAI*Betina transisi	0.512	10.232	0.096	.
FAI*Jantan transisi	15.575	15.805	0.032	*

Lampiran 19. Analisis statistik uji GLMM antara FAI tinggi dengan serangga

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	-257.289	435.580	0.554	
Betina remaja	-151.909	455.567	0.074	.
Betina dewasa	1166.735	653.066	0.074	.
Betina transisi	66.694	107.386	0.534	
Jantan transisi	59.682	461.932	0.090	.
FAI	31.111	50.786	0.054	.
FAI*Betina remaja	30.574	53.923	0.072	.
FAI*Betina dewasa	-140.959	78.509	0.570	
FAI*Jantan transisi	0.035	54.590	0.099	.

Lampiran 20. Analisis statistik uji GLMM antara FAI rendah dengan buah liana

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	245.869	137.870	0.074	.
Jantan remaja	139.641	223.179	0.631	
Betina dewasa	-9.782	58.063	0.866	
Betina transisi	-307.122	67.735	0.780	
Jantan transisi	-307.287	201.059	0.126	
FAI	-39.884	54.526	0.046	*
FAI*Jantan remaja	-14.756	91.832	0.720	
FAI*Betina dewasa	-23.347	32.012	0.465	
FAI*Betina transisi	123.209	32.215	0.890	
FAI*Jantan transisi	130.529	80.734	0.105	

Lampiran 21. Analisis statistik uji GLMM antara FAI tinggi dengan buah liana

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	2821.570	583.610	0.000	***
Betina remaja	-1520.650	609.270	0.012	*
Betina dewasa	-3136.540	875.220	0.610	.
Betina transisi	-812.830	143.730	0.000	***
Jantan transisi	-1654.980	617.850	0.007	**
FAI	-303.330	68.030	0.000	***
FAI*Betina remaja	145.520	72.100	0.043	*

FAI*Betina dewasa	351.820	105.210	0.080	.
FAI*Jantan transisi	157.910	73.000	0.030	*

Lampiran 22. Analisis statistik uji GLMM antara FAI rendah dengan daun muda liana

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	18.874	10.094	0.061	.
Jantan remaja	10.969	16.085	0.495	
Betina dewasa	18.719	14.617	0.200	
Betina transisi	17.352	15.200	0.253	
Jantan transisi	-11.654	13.715	0.395	
FAI	8.042	5.103	0.115	
FAI*Jantan remaja	-17.465	12.722	0.069	.
FAI*Betina dewasa	-9.221	9.159	0.314	
FAI*Betina transisi	-13.282	7.516	0.077	.
FAI*Jantan transisi	0.022	7.871	0.997	

Lampiran 23. Analisis statistik uji GLMM antara FAI tinggi dengan daun muda liana

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	0.000	229.300	1.000	
Betina remaja	65.420	239.700	0.785	
Betina dewasa	-193.700	343.700	0.573	
Betina transisi	31.750	56.510	0.574	
Jantan transisi	-20.600	243.100	0.932	
FAI	1.490	26.730	1.000	
FAI*Betina remaja	-5.704	28.380	0.841	
FAI*Betina dewasa	2.500	41.320	0.545	
FAI*Jantan transisi	4.435	28.730	0.877	

Lampiran 24. Analisis statistik uji GLMM antara FAI rendah dengan daun tua liana

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	16.430	10.475	0.117	.
Jantan remaja	-5.874	17.320	0.735	
Betina dewasa	11.733	9.331	0.209	
Betina transisi	-5.752	10.143	0.571	
Jantan transisi	-10.286	14.836	0.488	
FAI	-5.023	5.616	0.371	
FAI*Jantan remaja	8.725	9.789	0.373	
FAI*Betina dewasa	-7.537	5.258	0.152	
FAI*Betina transisi	2.747	5.088	0.589	.
FAI*Jantan transisi	1.286	8.091	0.874	

Lampiran 25. Analisis statistik uji GLMM antara FAI tinggi dengan daun tua liana

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	0.000	27.450	1.000	
Betina remaja	-0.482	28.630	0.987	
Betina dewasa	-23.250	41.570	0.576	
Betina transisi	1.250	7.223	0.863	

Jantan transisi	0.000	29.030	1.000
FAI	0.000	3.224	1.000
FAI*Betina remaja	0.234	3.426	0.946
FAI*Betina dewasa	3.138	5.010	0.531
FAI*Jantan transisi	0.000	3.475	1.000

Lampiran 26. Analisis statistik uji GLMM antara FAI rendah dengan bunga liana

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	-54.700	72.330	0.449	
Jantan remaja	113.220	115.660	0.327	
Betina dewasa	82.310	31.420	0.008	**
Betina transisi	262.630	36.690	0.000	***
Jantan transisi	136.850	104.210	0.189	
FAI	28.740	32.330	0.373	
FAI*Jantan remaja	-46.390	52.240	0.374	
FAI*Betina dewasa	-43.850	17.220	0.010	*
FAI*Betina transisi	-108.340	17.260	0.000	***
FAI*Jantan transisi	-63.720	46.520	0.170	

Lampiran 27. Analisis statistik uji GLMM antara FAI tinggi dengan bunga liana

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	-532.960	92.410	0.000	***
Betina remaja	531.450	96.230	0.000	***
Betina dewasa	509.530	139.030	0.000	***
Betina transisi	121.780	22.900	0.000	***
Jantan transisi	556.590	97.610	0.000	***
FAI	64.440	10.790	0.000	***
FAI*Betina remaja	-64.350	11.430	0.000	***
FAI*Betina dewasa	-61.310	16.720	0.000	***
FAI*Jantan transisi	-67.170	11.580	0.000	***

Lampiran 28. Analisis statistik uji GLMM antara FAI rendah dengan lipid

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	20.617	22.114	0.351	
Jantan transisi	49.617	27.472	0.071	.
Betina remaja	19.748	27.546	0.473	
Jantan remaja	30.88	30.651	0.314	
Betina dewasa	57.212	29.619	0.053	.
FAI	-0.57	9.751	0.953	
FAI*Jantan transisi	-21.047	13.436	0.071	.
FAI*Betina remaja	-6.459	12.531	0.606	
FAI*Jantan remaja	-19.491	18.418	0.29	
FAI*Betina dewasa	-29.838	15.542	0.055	.

Lampiran 29. Analisis statistik uji GLMM antara FAI tinggi dengan lipid

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	-111.270	334.500	0.059	.
Jantan transisi	-21.530	362.050	0.043	*
Betina remaja	-285.540	353.520	0.049	*
Jantan remaja	109.990	500.960	0.826	
Betina dewasa	-112.560	84.130	0.181	*
FAI	28.810	51.260	0.034	*
FAI*Jantan transisi	-8.240	54.270	0.037	*
FAI*Betina remaja	32.660	53.560	0.042	*
FAI*Jantan remaja	-28.510	67.220	0.671	

Lampiran 30. Analisis statistik uji GLMM antara FAI rendah dengan NDF

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	308.161	221.207	0.064	.
Jantan transisi	224.222	270.37	0.047	*
Betina remaja	49.783	268.252	0.038	*
Jantan remaja	211.206	299.046	0.48	
Betina dewasa	235.106	285.105	0.041	*
FAI	-47.033	97.446	0.029	*
FAI*Jantan transisi	-99.441	123.879	0.042	*
FAI*Betina remaja	1.967	118.395	0.047	*
FAI*Jantan remaja	-141.49	155.789	0.364	
FAI*Betina dewasa	-146.707	136.187	0.028	*

Lampiran 31. Analisis statistik uji GLMM antara FAI tinggi dengan NDF

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	-2009.900	2596.800	0.049	*
Jantan transisi	1193.100	2804.400	0.671	
Betina remaja	1113.800	2737.800	0.084	.
Jantan remaja	1598.800	3888.200	0.061	.
Betina dewasa	-916.900	651.700	0.159	
FAI	387.000	398.000	0.033	.
FAI*Jantan transisi	-251.900	420.700	0.549	
FAI*Betina remaja	-209.500	415.200	0.014	*
FAI*Jantan remaja	-329.000	521.700	0.058	.

Lampiran 32. Analisis statistik uji GLMM antara FAI rendah dengan protein

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	56.24	20.967	0.007	**
Jantan transisi	-2.021	25.836	0.938	
Betina remaja	-24.309	24.457	0.32	
Jantan remaja	-7.459	28.946	0.797	
Betina dewasa	22.993	26.989	0.394	
FAI	-12.46	10	0.213	
FAI*Jantan transisi	-1.642	12.988	0.899	
FAI*Betina remaja	11.573	11.49	0.314	

FAI*Jantan remaja	-1.369	16.479	0.934
FAI*Betina dewasa	-13.314	14.314	0.352

Lampiran 33. Analisis statistik uji GLMM antara FAI tinggi dengan protein

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>
Intercept	-13.504	250.242	0.957
Jantan transisi	-39.486	270.805	0.884
Betina remaja	-321.696	264.422	0.224
Jantan remaja	-18.444	374.771	0.961
Betina dewasa	-53.697	62.926	0.393
FAI	11.159	38.346	0.771
FAI*Jantan transisi	-0.530	40.594	0.990
FAI*Betina remaja	40.894	40.063	0.307
FAI*Jantan remaja	-5.514	50.284	0.913

Lampiran 34. Analisis statistik uji GLMM antara FAI rendah dengan karbohidrat

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>
Intercept	110.861	113.349	0.032 *
Jantan transisi	140.663	141.885	0.322 .
Betina remaja	45.461	135.08	0.077 .
Jantan remaja	173.997	155.54	0.263 .
Betina dewasa	152.642	143.803	0.289 .
FAI	-3.945	45.753	0.051 .
FAI*Jantan transisi	-65.249	60.146	0.278 .
FAI*Betina remaja	1.417	56.504	0.098 .
FAI*Jantan remaja	-104.264	77.141	0.177 .
FAI*Betina dewasa	-113.994	64.062	0.175 .

Lampiran 35. Analisis statistik uji GLMM antara FAI tinggi dengan karbohidrat

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>
Intercept	-1591.100	1401.200	0.026 *
Jantan transisi	1402.500	1512.400	0.354 .
Betina remaja	2087.400	1465.800	0.154 .
Jantan remaja	1482.600	2096.100	0.479 .
Betina dewasa	-566.600	352.400	0.018 *
FAI	278.300	214.800	0.195 .
FAI*Jantan transisi	-242.000	227.500	0.087 .
FAI*Betina remaja	-314.500	222.600	0.158 .
FAI*Jantan remaja	-262.500	281.800	0.051 .

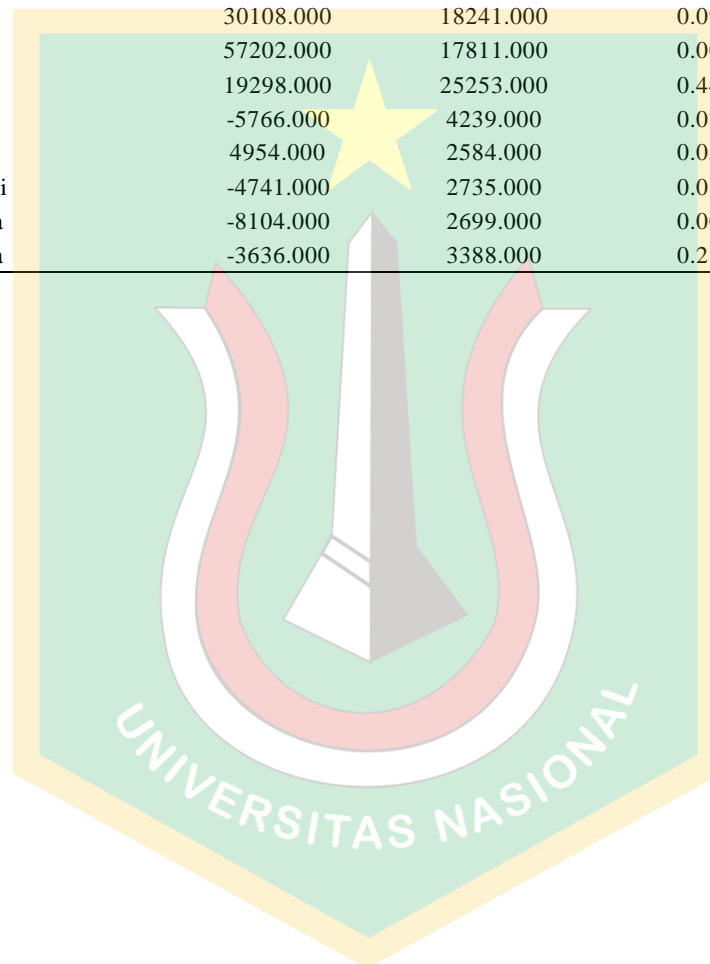
Lampiran 36. Analisis statistik uji GLMM antara FAI rendah dengan asupan energi

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>
Intercept	868.400	479.200	0.070 .
Jantan transisi	-637.200	595.200	0.284 .
Betina remaja	376.800	586.300	0.520 .
Jantan remaja	1,461.700	662.000	0.027 *
Betina dewasa	335.100	632.000	0.596 .

FAI	250.200	220.700	0.057	.
FAI*Jantan transisi	368.900	319.000	0.247	.
FAI*Betina remaja	465.000	283.200	0.100	.
FAI*Jantan remaja	-183.000	453.600	0.066	.
FAI*Betina dewasa	256.500	377.300	0.496	.

Lampiran 37. Analisis statistik uji GLMM antara FAI tinggi dengan asupan energi

<i>Linear Hypothesis</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>p-value</i>	
Intercept	-29631.000	16863.000	0.078	.
Jantan transisi	30108.000	18241.000	0.098	.
Betina remaja	57202.000	17811.000	0.001	**
Jantan remaja	19298.000	25253.000	0.444	.
Betina dewasa	-5766.000	4239.000	0.073	.
FAI	4954.000	2584.000	0.050	*
FAI*Jantan transisi	-4741.000	2735.000	0.083	.
FAI*Betina remaja	-8104.000	2699.000	0.003	**
FAI*Jantan remaja	-3636.000	3388.000	0.283	.



PAPER NAME

**STRATEGI MAKAN DAN ASUPAN ENERGI
ORANGUTAN KALIMANTAN (PONGO P
YGMAEUS WURMBII) REMAJA DI STASI
UN PEN**

AUTHOR

Silvia Hasan

WORD COUNT

18929 Words

CHARACTER COUNT

117299 Characters

PAGE COUNT

77 Pages

FILE SIZE

3.2MB

SUBMISSION DATE

Jan 13, 2024 11:07 AM GMT+7

REPORT DATE

Jan 13, 2024 11:09 AM GMT+7

● 20% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

- 20% Internet database
- 15% Publications database
- Crossref database
- Crossref Posted Content database
- 0% Submitted Works database

● Excluded from Similarity Report

- Small Matches (Less than 8 words)

