

## DAFTAR REFERENSI

- A'yunin, Qurrotu, Rauf, Aunu, Harahap, Idham Sakti., 2019. Perilaku Kunjungan dan Efisiensi Penyerbukan *Heterotrigona itama* (Cockerell) dan *Tetragonula laeviceps* (Smith) (Hymenoptera: Apidae) pada Labu Siam. *Jurnal Ilmu Pertanian Indonesia (JIPI)*, Vol. 24 (3): 247-257. DOI: 10.18343/jipi.24.3.247
- Abbas, Muachiroh & Sucianto, Eddy, Tri, 2020. Feed Resources Determination Based on Pollen Diversity in Trigona Bees (*Trigona* sp.) Colony. *Journal of Biology & Biology Education Biosaintifika* 12 (3): 478-487
- Abrol, D. P., 2011. *Foraging. In: Honeybees of Asia.* R. Hepburn and Sarah E. Radolf (Eds). Springer, Berlin Heidelberg. pp. 257-292
- Addina, L, Yanuwiadi, B., Gama, Z.P. dan Leksono, A.S., 2013. Efek Perpaduan Beberapa Tumbuhan Liar di Sekitar Area Pertanaman Padi Dalam Menarik Arthropoda Musuh Alami dan Hama. *El-Hayah* Vol. 3, No.2. Hal 71-78.
- Aleixo, K. P., Menezes, C., Fonseca, V. L. I., & Silva, C. I. da., 2017. Seasonal availability of floral resources and ambient temperature shape stingless bee foraging behavior (*Scaptotrigona* aff. *depilis*). *Springer Verlag*, 48 (1), 117-127.
- Altieri, M., dan C. Nicholls, 2004. *Biodiversity and Pest Management in Agroecosystems*. Food Product Press. Hal. 236.
- Altmann, J., 2014. Observational Study of Behavior: Sampling Methods Author. *JSTOR*, 49 (3), 227-267.
- Aththorick T.A., 2005. *Kemiripan Komunitas Tumbuhan Bawah pada Beberapa Ekosistem Perkebunan Di Kabupaten Labuhan Batu.* Komunikasi Penelitian 17: 42-48
- Atmowidi T, Buchori D., Manuwoto S., Suryobroto B., dan Hidayat P., 2007. *Diversity of insect pollinators and seed set of mustard (*Brassica rapa*: Brassicaceae).* Hayati 14: 155-161.
- Azmi, W. A., Zulqurnain, N. S., & Ghazi, R., 2015. Melissopalynology And Foraging Activity Of Stingless Bees, *Lepidotrigona Terminata*

(Hymenoptera: Apidae) From An Apiary In Besut , Terengganu. *Journal of Sustainability Science and Management*, 10 (1), 27-35.

Backer, C. A. & Bakhuizen Van den Brink., 1963. *Flora of Java*. NV, P. Noordhooff-Goningen, Netherland

Basari N, Ramli SN, Khairi ASM. 2018. Food reward and distance influence the foraging pattern of stingless bee, *Heterotrigona itama*. *Insects*. 9: 1-10. <https://doi.org/10.3390/insects9040138>

Benedick, Suzan, Gansau, Jualang Azlan dan Ahmad, Abdul Hamid. Foraging Behaviour of *Heterotrigona itama* (Apidae: Meliponini) in Residential Areas. *Pertanika J. Trop. Agric. Sci.* 44 (2): 485-502. DOI: <https://doi.org/10.47836/pjtas.44.2.13>

Bosch, J. & Kemp, WP., 2002. Developing and establishing bee species as crop pollinators: the example of *Osmia* spp. (Hymenoptera: Megachilidae) and fruit trees. *Bull etamol R*. 92: 3-16.

Cook S.M., Awmacki C.S., Murray DA., dan Williams I.H., 2003. Are Honey Bees Foraging Preferences Affected by Pollen Amino Acid Composition?. *Ecol Entamol* 28: 622-627.

Corlett, R. T., 2011. *Honeybees in natural ecosystems*. In: *Honeybees of Asia*. R. Hepburn and Sarah E. Radolf (Eds). Springer, Berlin Heidelberg. pp. 215-225

Daily, GC., Alexander, S., Ehrlich, P., Goulder, L., Lubchenco, J., Matson, PA., Mooney, H., Postel, S., Schneider. SH., Tilman, D., & Woodwell, MG., 1997. Ecosystem services: benefit supplied to human societies by natural ecosystem. *Issues Ecol*. 2, 1-16.

Delaplane, KS., & Mayer, DF., 2000. *Crop Pollination by Bees*. Oxon: CABI Publishing.

Eltz, T., 2004. Spatio-temporal variation of apine bee attraction to honeybaits in Bornean forests, *J. Trop. Ecol*. 20, 317-324.

Eltz, T., Brühl, CA., van der Kaars, S., Chey, VK., Linsenmair KE., 2001. Pollen foraging and re-source partitioning of stingless bees in relation to flowering

- dynamics in a Southeast Asian tropical rainforest. *Insectes Soc.* 48, 273 – 279.
- Erdtman, G., 1952. *Pollen Morphology and Plant Taxonomy Angiospermae (An Introduction to Palinology I)*. Sweden: Almquist & Wiksells
- Erniwati, Kahono, S., 2009. Peranan Tumbuhan Liar dalam Konservasi Serangga Penyerbuk Ordo Hymneoptera. *J Tek Ling.* 10 (2): 195-203.
- Erniwati, 2013. Kajian Biologi Lebah Tak Bersengat (Apidae: Trigona) Di Indonesia. *Fauna Indonesia*, 12 (1), 29-34
- Faegri dan Van Der Pijl., 1971. *The Principles of Pollination Ecology*. Braunschweig: Pergamon Press.
- Fauzia, S., Sukarsa, & Herawati, W. (2019). Karakteristik Morfologi Polen sebagai Sumber Pakan Lebah Trigona sp. *BioEksakta: Jurnal Ilmiah Biologi Unsoed*, 1 (2), 115-122.
- Figueiredo-Mecca, G., Bego, L., & Nascimento, F. (2013). Foraging Behavior of Scaptotrigona depilis (Hymenoptera, Apidae, Meliponini) and its Relationship with Temporal and Abiotic Factors. *Sociobiology*, 60 (3), 277-282.
- Free, JB., 1982. *Bees and Mankind*. George Allen & Unwin, London (GB).
- Francoy, TM., 2009. Gender identification of five genera of stingless bees (Apidae, Meliponini) based on wing morphology. *Genet Mol Res.* 8: 207-214.
- Hasan, P. A., & Atmowidi, T., 2017. Hubungan Jenis Serangga Penyerbuk dengan Morfologi Bunga pada Tanaman Tomat dan Sawi (*Brassica juncea* Linn.). *Jurnal Saintifik*, 3 (1), 77-82.
- Heard, T.A., 1999. *The Role of Stingless Bee in Crop Pollination*. Ann. Rev. Entomol. 44: 183-206.
- Hrncir, M., Silva, C. M., Souza, V. H. da S. T., & Fonseca, V. L. I. (2019). Stingless Bees and Their Adaptations to Extreme Environments. *Journal of Comparative Physiology A.*, 205 (3), 1-12.

- Jaapar, Mohd. Fahimee, Jajuli, Rosliza, Mispan, Muhamad Radzali, dan Ghani, Idris Abd., 2018. Foraging behavior of stingless bee *Heterotrigona itama* (Cockerell, 1918) (Hymenoptera: Apidae: Meliponini). AIP Conference Proceedings <https://doi.org/10.1063/1.5027952>
- Jarvis, A., Lane, A. & Hijmans, RJ., 2008. The effect of climate change on crop wild relatives. *Agriculture Ecos & Env*, 126: 13-23.
- Jumar, 2000. *Entomologi Pertanian*. Jakarta: PT Rineka Cipta
- Kahono S, Chantawannakul P, Engel MS., 2018. *Social bees and the current status of beekeeping in Indonesia*. In: Chantawannakul P, Williams G, Neumann P (eds). Asian Beekeeping in the 21st Century. Springer Verlag, Berlin.
- Karunaratne P., W. A. Inoka., Jayanthi P., Edirisinghe & C. V. S Gunatilleke., 2005. Floral Relationship Of Bees In Selected Areas Of Sri Lanka. *J. Sci. (Bio. Sci.)* Vol. 34: 27-45
- Kerisna, V., Diba, F., & Wulandari, R. S. (2019). Veronika Kerisna, Farah Diba, Reine Suci Wulandari. *Jurnal Tengkawang*, 9 (2), 82-91.
- Kevan, PG., 1999. Pollinators as bioindicators of the state of the environment: species, activity and diversity. *Agriculture, Ecosystems and Environment*, 74, 373-393.
- Kearns CA, Inouye DW., 1997. Pollinators, Flowering Plants and Conservation Biology. Much Remains to Learned about Pollinators and Plant. *BioScience* 97 (5): 297-305
- Kumar MS, Singh AJAR, Alagumuthu G., 2012. Traditional bees keeping of stingless bees (*Trigona* sp.) by Kani tribes of Western Ghats, Tamil Nadu, India. *Indian J Tradit Knowl*, 11: 342-345.
- Lourino MC, Fonseca VLI, Roubik DW, Dollin A, Heard T, Aguilar IB, Venturieri GC, Eardley C, Neto PN., 2006. Global meliponiculture: Challenges and opportunities. *Apidologie* 37: 1-18.
- Mandelik, Y., Winfree, R., Neeson, T., & Kremen, C., 2012. Complementary habitat use by wild bees in agro-natural landscapes. *Ecological Applications*, 22 (5), 1535-1546.

Michener CD., 2007. The Bees of The World. Second Edition. The Johns Hopkins Univ. Pr, Baltimore, USA.

Moore, D., & Rankin, M. A. 1983. Diurnal changes in the accuracy of the honeybee foraging rhythm. *Biological Bulletin*, 164 (3), 471-482. <https://doi.10.2307/1541256>

Nagamitsu, T., & Inoue, T., 2002. Foraging activity and pollen diets of subterranean stingless bee colonies in response to general flowering in Sarawak, Malaysia. *Apidologie*, 33 (3), 303-314. <https://doi.org/10.1051/apido:2002016>

Nicholls CI, Altieri MA., 2013. *Plant Biodiversity Enhances Bees and Other Insect Pollinators In Agroecosystems*. A review. Agron Sustain Dev 33: 257-274

Njoroge GN, Gemmill B, Bussmann R, Newton LE, Ngumi VW., 2004. Pollination ecology of *Citrullus lanatus* at Yatta, Kenya. *International Journal of Tropical Insect Science*. 24 (1): 73-77. <https://doi.org/10.1079/IJT20042>

Nugroho, A. S., Anis, T. dan Ulfah, M., 2015. Analisis Keanekaragaman Jenis Tumbuhan Berbuah Di Hutan Lindung Surokonto, Kendal, Jawa Tengah dan potensinya sebagai kawasan konservasi burung. *Pros Sem Nas Masy Biodiv Indon*. Vol. 01, No.3. ISSN: 2407-8050. Hal: 472-476.

Pangestika, N. W., Atmowidi, T., & Kahono, S., 2017. Pollen Load and Flower Constancy of Three Species of Stingless Bees (Hymenoptera, Apidae, Meliponinae). *Tropical Life Sciences Research*, 28 (2), 179-187.

Pratiknyo, H., & Darsono, 2012. Populasi Tungau Parasit *Varroa jacobsoni*: Penyebab Kematian Pupa dan Korelasinya terhadap Produksi Madu *Apis cerana* pada Sisiran Sarang Membujur dan Melintang. Biosfera, 29 (3), 127-135.

Putra, R. E., Permana, A. D., & Kinashih, I., 2014. Application of Asiatic Honey Bees (*Apis cerana*) and Stingless Bees (*Trigona laeviceps*) as Pollinator Agents of Hot Pepper (*Capsicum annuum L.*) at Local Indonesia Farm System. *Psyche*, 1-5.

Putra, R. E., Subagio, J., Kinashih, I., Permana, A. D., & Rosmiati, M., 2017. Pola kunjungan serangga liar dan efek penambahan koloni Trigona (*Tetragonula laeviceps* Smith. pada penyerbukan kabocha (*Cucurbita maxima*). *Jurnal Entomologi Indonesia*, 14 (2), 69-79.

- Ramadhani, EP., Purwatiningsih, Soesilohadi, RCCH. & Sastrodihardjo, S.. 2000. Evaluasi Serangga Penyerbuk Tanaman Pertanian. *Prosiding symposium keanekaragaman hayati Arthropoda pada sistem produksi pertanian.*
- Rasmussen C, Cameron SA., 2007. A molecular phylogeny of the old world stingless bee (Hymenoptera: Apidae: Meliponini) and the non-monophyly of the large genus *Trigona*. *Syst Entomol.* 32:26-39.
- Rasmussen, C., 2008. Catalog of the Indo-Malayan/ Australasian stingless bees (Hymenoptera: Apidae: Meliponini). *Zootaxa.* 1935:1-80.
- Rasmussen, C., Michener CD., 2010. The identity and neotype of *Trigona laeviceps* Smith (Hymenoptera: Apidae). *J Kans Entomol Soc.* 83: 129-133.
- Robson, DB., 2014. Identification of plant species for crop pollinator habitat enhancement in the northern prairies. *J Pollin Ecol.* 14 (21): 218-234.
- Roubik D.W., 1989. Ecology and natural history of tropical bees, Cambridge University Press, New York.
- Roubik, D.W., 1993. Tropical pollinators in the canopy and understory-field data and theory for stratum preferences, *J. Insect Behav.* 6, 659-673.
- Roubik D.W., Yanega D., Aluja M., Buchmann S.L., Inouye D.W., 1995 On optimal nectar foraging by some tropical bees (Hymenoptera, Apidae), *Apidologie* 26, 197-211.
- Sadeh, A., Shmida, A., & Keasar, T., 2007. The Carpenter Bee *Xylocopa pubescens* as an Agricultural Pollinator in Greenhouses. *Apidologie*, 38, 508-517.
- Salatnaya, H., Fuah, A. M., & Widodo, W. D., 2020. Aktivitas *Tetragonula laeviceps* (Hymenoptera: Apidae: Meliponini) pada Perkebunan Pala (*Myristica fragrans* Hout) Monokultur dan Polikultur di Jawa Barat. *Koli Journal*, 1(1), 14-20.
- Sanjaya, V., Astiani, D., & Sisillia, L., 2019. Studi Habitat Dan Sumber Pakan Lebah Kelulut Di Kawasan Cagar Alam Gunung Nyiut Desa Pisak Kabupaten Bengkayang. *Jurnal Hutan Lestari*, 7 (2), 786-798.

- Sari, W. R., Widhiono, I., & Darsono, 2020. Efektivitas Penyerbukan Lebah Madu (*Apis mellifera*) pada Tanaman Stroberi (*Fragaria x ananassa* var Duch) di Desa Serang, Purbalingga. *BioEksakta: Jurnal Ilmiah Biologi Unsoed*, 2 (1): 86-90.
- Schwarz, H. 1937. *Results of the Oxford University Sarawak (Borneo) expedition: Bornean stingless bees of the genus Trigona*. Bulletin of The American Museum of Natural History, 73 (3): 281-329
- Sommeijer MJ, De Bruijn LLM, Van de Guchte C., 1985. The social food flow within the colony of a stingless bee, *Melipona favosa* (F.), *Behaviour* 92, 39-58.
- Sommeijer MJ, De Rooy GA, Punt W., De Bruijn LLM., 1983. A comparative study of foraging behavior and pollen resources of various stingless bees (Hym., Meliponinae) and honeybees (Hym., Apinae) in Trinidad, West Indies, *Apidologie* 14, 205-224.
- Steenis, CGG. 2013. *Tumbuhan* . PT Balai Pustaka, Jakarta. 495 hal.
- Steffan-Dewenter, I., & Tscharntke, T., 2001. Succession of bee communities on fallows. *Ecography*, 24 (1), 83-93. <https://doi.org/10.1034/j.1600-0587.2001.240110.x>
- Stelzer, R. J., Stanewsky, R., & Chittka, L., 2010. Circadian foraging rhythms of bumble bees monitored by radio-frequency identification. *Journal of Biological Rhythms*, 25 (4), 257-267. <https://doi.org/10.1177/0748730410371750>
- Stone, GN., 1994. Activity patterns of females of the solitary bee Arthropora plumpies in relation to temperature, nectar supplies, and body size. *Ecol Entomol*, 19: 177-189.
- Widhiono, I., & Sudiana, E., 2015a. Peran tumbuhan liar dalam konservasi keragaman serangga penyerbuk Ordo Hymenoptera. *Prosiding Seminar Nasional Biodiversitas Indonesia*, 1, 1586–1590.
- Widhiono, I., & Sudiana, E., 2015b. Keragaman Serangga Penyerbuk dan Hubungannya dengan Warna Bunga pada Tanaman Pertanian di Lereng Utara Gunung Slamet , Jawa Tengah Diversity of insect pollinators and its relationshi. *Biospecies*, 8 (January), 43–50.

Widhiono, I., 2016. *Strategi Konservasi Serangga Pollinator*. Purwokerto. Universitas Jenderal Soedirman.

Widhiono, I., Sudiana, E., Trisucianto, E., & Darsono., 2016. *Keragaman Serangga Penyerbuk di Lereng Gunung Slamet dan Sekitarnya*.

Willey, A., Orozco, E., & Raabe, C., 1983. Polinización del chayote *Sechium edule* (Jacq.) Swartz en Costa Rica. *Revista De Biología Tropical*, 1 (31), 145-154.

Wulandari, A. P., Atmowidi, T., & Kahono, S., 2017. Peranan Lebah *Trigona laeviceps* (Hymenoptera : Apidae) dalam Produksi Biji Kailan (*Brassica oleracea* var . *alboglabra*) The Role of *Trigona laeviceps* (Hymenoptera: Apidae) in Seed Production of Kale ( *Brassica oleracea* var . *alboglabra*). *Jurnal Agron Indonesia*, 45 (2), 197-204.

Wulandari, D. D., 2017. Kualitas Madu (Keasaman, Kadar Air, dan Kadar Gula Pereduksi) Berdasarkan Perbedaan Suhu Penyimpanan. *Jurnal Kimia Riset*, 2 (1).

Yildirim H, Özöl T, & H Yaşayacak., 2019. An alien species of *Bidens* (Asteraceae): *Bidens pilosa* L., new to the Turkish flora. *Acta Biologica Turcica*, 32 (1) 61-64.

Yustia, I. P. J., Rauf, A., & Maryana, N., 2017. Ritme aktivitas penerbangan harian *Tetragonula laeviceps* (Smith) (Hymenoptera: Apidae) di Bogor. *Jurnal Entomologi Indonesia*, 14(3), 61–69.