



RCHID: 0000-0003-1931-2672

Position: *Research Scientist (Forest genetics and tree improvement)*

1. PERSONAL INFORMATION

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| 1.1. NAME | Stephen Fredrick Omondi |
| 1.2. ADDRESS | P.O Box 20412-00200, Nairobi |
| 1.3. PHONE | 0723802170 |
| 1.4. EMAIL ADDRESS | stephenf.omondi@gmail.com or somondi@kefri.org |
| 1.5. NATIONALITY | Kenyan |
| 1.6. GENDER | Male |

2. QUALIFICATIONS

2.1. Academic Qualifications

- 2013-2016: PhD in Plant Ecology, University of Nairobi, Kenya
- 2005-2010: Masters of Philosophy (M.Phil.) in Forestry, Moi University, Eldoret, Kenya
- 1999-2004: Bachelor of Science (BSc.) in Forestry, Moi University, Eldoret, Kenya

2.2. Other Courses

- 2nd-3rd November 2017:** Demand-Led Breeding held at ILRI campus, Nairobi, Kenya.
- 31st March - 2nd April 2015:** ISO 9001:2008 (Quality Management System) Internal Audit training course, Kitui Regional Center - KEFRI.
- May – June 2014:** Training on molecular data analysis and interpretation at Forest Tree Breeding Centre (FTBC), Takahagi, Japan.
- 25th-27th November 2013:** Training on analysis of molecular data in African timber species, Libreville, Gabon.
- 11th-13th September 2013:** ISO 14001 (Environment Management System) Internal Audit training, KEFRI headquarters, Nairobi, Kenya.

10th June -12th July 2013: Training on Genotyping of *Melia volkensii* using microsatellite markers and SNP discovery in *Acacia tortilis* at Forest Tree Breeding Centre (FTBC), Takahagi, Japan.

11-17th March 2013: Training on the application of molecular genetic markers for timber tracking in Africa, KEFRI, Nairobi, Kenya.

4th July -25th August 2012: Training on DNA analysis (Development and use of microsatellite markers of *Acacia tortilis*) at Forest and Tree Breeding Centre (FTBC), Takahagi, Japan.

22nd - 24th June 2012: IUFRO-FORNESSA Pre-Congress training; Preparing and writing research proposals.

23rd-27th January 2012: Science writing course at Kenya Forestry Research Institute (KEFRI) headquarters, Nairobi, Kenya

3. EMPLOYMENT HISTORY

Sept 2018 – Date: Research Scientist I, Tree breeding and Improvement, Kenya Forestry Research Institute (KEFRI), P.O Box 20412 - 00200 Nairobi, Kenya.

Jan 2014- Sept 2018: Research Scientist II, Tree breeding and Improvement, Kenya Forestry Research Institute (KEFRI), P.O Box 20412 - 00200 Nairobi, Kenya.

June 2010 - Jan 2014: Assistant Research Officer, Tree breeding and Improvement, Kenya Forestry Research Institute (KEFRI), P.O Box 20412 - 00200 Nairobi, Kenya.

4. ADMINSTRATIVE RESPONSIBILITY

May 2019- Date: Deputy Regional Director, Central Highlands Eco-region Research Programme, Kenya Forestry Research Institute (KEFRI), P.O Box 20412 - 00200 Nairobi, Kenya.

5. PUBLICATIONS

5.1. Journal papers

Gatama SM and **Omondi SF** (2020) Factors Influencing Good Governance in Forest Management and Protection: A Case Study of Mt. Elgon Forest Reserve, Kenya. Journal of Economics and Sustainable Development, 11(12):34-41. DOI: 10.7176/JESD/11-12-06

Omondi SF and Khasa DP (2019) Estimating realized gene flow patterns in the Kenyan population of *Acacia senegal* (syn. *Senegalia senegal*): an empirical comparison of

SNP and microsatellite variations. Brazilian Journal of forestry Special issue. <http://dx.doi.org/10.4336/2019.pfb.39e201902043>

- Karani JK, Githae EW and **Omondi SF** (2019). Morphological Characterization of Fungal Infestations on Road-side Tree Nursery Seedlings and the Influence of Environmental Factors on their Spread. *Journal of Scientific and Engineering Research* 6(7):11-21.
- Omondi SF**, Machua J, Muturi GM, Gicheru JM and Hanaoka S (2019). Evidence of high genetic diversity and significant population structuring in *Vachellia tortilis* (Forsk.) Galasso & Bonfi population in Kenya. *Annals of Forest Science* (DOI: 10.1007/s13595-019-0834-y)
- Andiego KP, Dangasuk OG, Odee DW, **Omondi SF**, Otieno, DF and Balozi BK (2019) Genetic diversity of endangered sandalwood (*Osyris lanceolata*) populations in Kenya using ISSR molecular markers. *East African Agricultural and Forestry Journal*, DOI: 10.1080/00128325.2019.1605964
- Suwarni E, **Omondi SF**, Dancik BP and Khasa DP (2018) Estimation of pollen contamination and mating system in *Pinus merkusii* seedling seed orchard using allozyme markers. *Journal of Tropical Forest Science* 30(1): 95–105.
- Omondi SF**, Odee DW, Ongamo GO, Kanya JI, and Khasa DP (2018). Mating patterns of the gum arabic tree (*Acacia senegal* synonym *Senegalia senegal*) in two different habitats. *New Forests* 49(1), 53-65.
- Bala P, Gitehi G, Oeba V, **Omondi SF**, Luvanda A and Okeyo M (2017). Effect of seasonality, graft type and scion characteristics on propagation of *Vitex payos* in the drylands of Kenya. *Journal of Horticulture and Forestry*, 9(6) 49-58.
- Otieno JO, Odee DW, **Omondi SF**, Oduor C and Kiplagat O (2017). Isolation and characterization of nitrogen fixing bacteria that nodulate alien invasive plant species *Prosopis juliflora* (Swart) DC. in Marigat, Kenya. *Tropical Plant Research* 4(1): 183–191.
- Omondi SF**, Ongamo GO, Kanya JI, Odee DW and Khasa DP (2017). Effects of Anthropogenic Disturbances on Natural Regeneration and Population Structure of Gum Arabic Tree (*Acacia senegal*) in the Woodland of Lake Baringo Ecosystem, Kenya. *Journal of Forestry Research* 28: 775-785.
- Otieno JO, **Omondi SF**, Perry A, Odee DW, Makatiani ET, Kiplagat O and Cavers S (2016). Development and characterization of microsatellite markers for *Osyris lanceolata*

- Hochst. and Steud., an endangered African sandalwood species. *Tropical Plant Research*, 3 (3): 701-703.
- Omondi SF**, Ongamo GO, Kanya JI, Odee DW and Khasa DP (2016). Genetic consequences of anthropogenic disturbances and population fragmentation in *Acacia senegal*. *Conservation Genetics* 17(6), 1235-1244.
- Omondi SF**, Ongamo GO, Kanya JI, Odee DW and Khasa DP (2016). Synchrony in leafing, flowering and fruiting phenology of *Senegalia senegal* within Lake Baringo woodland, Kenya: Implication for conservation and tree improvement. *International Journal of Forestry Research*, Volume 2016, Article ID 6904834.
- Cheche WW, Githae EW, **Omondi SF** and Magana AM (2015). An inventory and assessment of exotic and native plant species diversity in the Kenyan rangelands: Case study of Narok North Sub-County. *Journal of Ecology and the Natural Environment*, 7(8):238-246.
- Omondi SF**, Machua J, Gicheru JM, Hanaoka S (2015). Isolation and characterization of microsatellite markers for *Acacia tortilis* (Forsk.) Hayne. *Conservation Genet Resour.* 7 (2): 529-531.
- Odee DW, Wilson J, **Omondi SF**, Perry A, Cavers S (2015). Rangewide ploidy variation and evolution in *Acacia senegal*: a north– south divide? *Annals of Botanical Plants* 7: plv011; doi:10.1093/aobpla/plv011
- Hanaoka S, Nakawa N, Okubo N, **Omondi SF** and Kariuki J (2014): Seed pretreatment and methods for improving germination of *Acacia tortilis* seeds. *African Journal of Biotechnology*, 13 (50):4557-4561
- Omondi SF**, Githae EW and Ochieng JO (2014). Quantitative Variation in Seeds, Seedlings Growth and Biomass among *Acacia senegal* (L) Willd. Provenances in Kenya. *African Journal of Ecology* 53: 295-303.
- Githae EW, Gachene CKK, Njoka JT and **Omondi SF** (2013). Nitrogen fixation by natural populations of *Acacia senegal* in the drylands of Kenya using ¹⁵N natural abundance. *Arid Land Research and Management*, 27:327-336.
- Machua J, Muturi G, **Omondi SF** and Gicheru J (2011). Genetic diversity of *Jatropha curcas* L. populations in Kenya using RAPD molecular markers: Implication to plantation establishment. *African Journal of Biotechnology*, 10 (16):3062-3069.

Omondi SF, Dangasuk, GO, Odee DW, Cavers S and Khasa DP (2010). Cross-amplification and characterization of polymorphic microsatellite markers from *Acacia (Senegalia) mellifera* and *Acacia brevispica* to *Acacia senegal* (L.) Willd. *Silvae genetica*, 59 (6): 285-288.

Omondi SF, Kireger E, Dangasuk GO, Chikamai B, Odee DW, Cavers S and Khasa DP (2010). Genetic diversity and population structure of *Acacia Senegal* (L) Willd. in Kenya. *Journal of Tropical plant biology*, 3: 59-70.

5.2. Technical Notes /Protocols/Guidelines

Hanaoka S, **Omondi SF** and M. Matsushita (2017). Guidelines for Conservation of Genetic Resources of *Melia volkensii* and *Acacia tortilis* in the drylands of Kenya. Sankeisha Co LTD, Nagoya Aichi, Japan. ISBN 978-4-86487-733-6 C3045.

Hanaoka S, **Omondi SF** and Machua J (2013). Basic Molecular Techniques for Tree breeding: Experimental Protocol. Sankeisha Co LTD, Nagoya Aichi, Japan. ISBN 978-4-86487-110-5 C3045.

6. RESEARCH

6.1. Completed

1. Research and development in support of commercial forestry in Kenya, Funded by Gatsby Africa
2. Development of Drought Tolerant Trees for Adaptation to Climate Change in Drylands of Kenya (2012-2017)
3. Operationalisation of natural capital and ecosystem services (OpenNESS)
4. ACACIAGUM Project 2007-2012(Innovative management of *Acacia senegal* trees to improve resource productivity and gum-arabic production in arid and semi-arid sub-Saharan Africa.).

6.2.Ongoing research

1. Component lead investigator in the NRF funded project **“Propagation of Sandalwood for Livelihoods Support, Adaptation to Climate Change and Conservation of its Genepool, 2017-2020”**
2. Component lead investigator in the NRF funded project **“Enhancing productivity of plantation forests in Kenya through tree improvement, 2017-2020”**
3. Component lead investigator in the EU funded project **“Designing InnoVative plant teams for Ecosystem Resilience and agricultural Sustainability (DIVERSify) 2017-2021”**

4. Team leader in the EU funded project “**Transition paths to sustainable legume based systems in Europe (TRUE), case study of Kenya 2017-2021**”
5. Component lead investigator in the project “**Enhanced mass-propagation and utilisation of *Melia volkensii* by-products (2017-2020)**”

6.3. Mentorship and supervision

Master students supervision

Priscilla Njeri Kimani (A56/9270/2017-University of Nairobi) “Determining efficacy of artificial pollination and embryo rescue for improved breeding of *Melia volkensii*”

Kennedy Ng’ang’a (A56/9320/2017- University of Nairobi) “Micropropagation and molecular diversity of frankincense tree (*Boswellia sacra* Flueck.) ecotypes from Somaliland”

Rotich Kipkoech Japhet (I56/CE/34136/2016-Kenyatta University) “Determining the mating system and gene flow patterns of *Melia volkensii* within clonal seed orchard in Kibwezi using microsatellites”

Karani Jecinta Karuana (NM23/28912/16-Chuka University) “Assessment of road-side tree nursery diseases and the influence of environmental factors on their spread along agro-ecological zones, Kenya”

Benard Onyango Ogoma (TM318-C003-1020/15- Jomo Kenyatta University of Agriculture and Technology) “Genetic diversity of arbuscular mycorrhizal fungi associated with *Carissa edulis* an endangered species along Lake Victoria basin of Kenya”

7. CONFERENCES/SEMINARS/WORKSHOPS

7.1. Presentation of Papers at Academic and Professional Conferences

Omondi SF (2018) Evidence of genetic diversity and taxonomic differentiation among *Acacia senegal* populations and varieties in Kenya based on RAPD molecular markers. In: Kamondo, B., Tuwei, P. and Wanjiku, J. (Eds.) Recent advance in forestry research and technology development for sustainable forest management: Proceedings of the 5th Kenya Forestry Research Institute (KEFRI) scientific conference, Muguga, Kenya, 17-19th April 2018.

Omondi SF, MN Muchiri, E Chagala-Odera, PO Oballa, WO Atie and L Cherotich (2018) Early growth performance and survival of pine hybrids in Turbo and Muguga, Kenya. In: Kamondo,

B., Tuwei, P. and Wanjiku, J. (Eds.) Recent advance in forestry research and technology development for sustainable forest management: Proceedings of the 5th Kenya Forestry Research Institute (KEFRI) scientific conference, Muguga, Kenya, 17-19th April 2018.

Atie WO, Mbinga J, Cherono F, **Omondi SF**, Bala P, Muchiri MN and Chagalla, E (2018) Early growth performance of *Pinus maximinoi* and *P. tecunumanii* progeny trials at Turbo, Kenya. In: Kamondo, B., Tuwei, P. and Wanjiku, J. (Eds.) Recent advance in forestry research and technology development for sustainable forest management: Proceedings of the 5th Kenya Forestry Research Institute (KEFRI) scientific conference, Muguga, Kenya, 17-19th April 2018.

Omondi SF, Machua J, Muturi G, Gicheru J, Matsushita M and Hanaoka S (2018) Genetic diversity and structure of *Acacia tortilis* population in Kenya. In: Ochieng D, Kamondo B and Muturi G (eds) Proceedings of international conference on 'Project on development of drought tolerant trees for adaptation to climate change in drylands of Kenya' held at KEFRI headquarters Muguga from 13th-16th February 2017. KEFRI, Kenya.

Omondi SF, Machua J, Gicheru J, Matsushita M and Hanaoka S (2018) Identification of *Melia volkensii* elite trees through microsatellite markers fingerprinting. In: Ochieng D, Kamondo B and Muturi G (eds) Proceedings of international conference on 'Project on development of drought tolerant trees for adaptation to climate change in drylands of Kenya' held at KEFRI headquarters Muguga from 13th-16th February 2017. KEFRI, Kenya.

Omondi SF, Machua J, Gicheru J, Matsushita M and Hanaoka S (2018) Genetic diversity of remnant populations of *Melia volkensii* in Kenya: Implication for conservation and tree improvement. In: Ochieng D, Kamondo B and Muturi G (eds) Proceedings of international conference on 'Project on development of drought tolerant trees for adaptation to climate change in drylands of Kenya' held at KEFRI headquarters Muguga from 13th-16th February 2017. KEFRI, Kenya.

Omondi FS and Koech EK (2005). Effect of soil *ph* on ectomycorrhizae (*Pisolithus tictorius*) infections and developments of *Pinus patula* seedlings. In: Muchiri, M.N., Kamondo, B., Tuwei, P. and Wanjiku, J. (Eds.) Recent advance in forestry research and technology development for sustainable forest management: Proceedings of the 2nd KEFRI scientific conference, Muguga, Kenya, 1-4 November 2004.

7.2. Participation in Workshops/Conferences

November 2017: Resource person in Participatory Natural Resources Management course at KEFRI headquarters. Presented a paper "Application of molecular genetics in tree improvement"

16th-19th February 2015: Development of drought tolerant tree species for adaptation to climate change in drylands of Kenya at KEFRI, Kitui, Kenya.

17th February 2012: Resource person in Participatory Natural Resources Management course at KEFRI headquarters. Presented a paper “Tree improvement for natural resources management in Kenya”

23rd June 2011: BecA Hub @ ILRI- Roche 454 GS FLX Pyrosequencing Platform workshop, Nairobi, Kenya.

23rd-27th May 2011: CAMCORE regional workshop on data management for genetic trial at KEFRI, Nairobi, Kenya.

27th-29th April 2011: Regional workshop to support the preparation of the State of the World’s Forest Genetic resources in Africa at ICRAF, Nairobi, Kenya.

25th-27th Sept. 2007: The 1st Global workshop on improving Forest education at World agroforestry center (ICRAF) Nairobi, Kenya.

17th November 2006: Capacity building Stakeholders’ workshop: Tree products market chain and trade arrangements at Chepkoilel campus, Moi University.

4th -14th October 2005: Kenya Agricultural Research Institute regional workshop Njoro, Kenya: Markers assisted selection and mutation breeding.

8. EXTERNAL AND INTERNAL RESEARCH GRANTS

8.1. International Foundation for Science (IFS) research grant (US\$10,000)

9. AWARDS AND RECOGNITION

2017: Queen Elizabeth II Diamond Jubilee Scholarship at Universite Laval, Quebec, Canada

2016: Queen Elizabeth II Diamond Jubilee Scholarship at Universite Laval, Quebec, Canada

2008: Graduate Students Exchange Program Scholarship by Canadian Government at Université Laval, Québec, Canada.

10. MEMBERSHIP TO PROFESSIONAL BODIES

1. Forestry Society of Kenya (FSK)
2. Ecological Society for Eastern Africa (ESEA)

3. British Ecological Society (BES)

11. REFEREES

1. Dr. George O. Ongamo, School of Biological Sciences, University of Nairobi, P. O. Box P.O.BOX 30197-00100, Nairobi, Kenya. Email: gongamo@uonbi.ac.ke
2. Prof. Damase P. Khasa, Director, Center for Forest Research, Faculty of Forestry and Geomatics, Université Laval, Sainte-Foy, Québec, Canada G1k 7P4. Email: damase.khasa@ibis.ulaval.ca