




Faculty Details proforma for DU Web-site (2019)

(PLEASE FILL THIS IN AND Email it to websiteDU@du.ac.in and
cc: director@ducc.du.ac.in)

Title	Dr.	First Name	RATUL	Last Name	BAISHYA	Photograph
Designation		ASSISTANT PROFESSOR				
Address		Department of Botany University of Delhi Delhi-110007				
Phone No	Office	011-27667573				
	Residence	011-27476044				
	Mobile	+91-9910807343				
Email		rbaishyadu@gmail.com rbaishya@botany.du.ac.in				
Web-Page		www.du.ac.in www.botany.du.ac.in				
Educational Qualifications						
Degree		Institution			Year	
Ph.D.		North Eastern Hill University- Shillong			2012	
M.Phil. / M.Tech.						
PG		North Eastern Hill University- Shillong			2004	
UG		North Eastern Hill University- Shillong			2002	
Any other qualification		UGC-NET (JRF)			2004	
Career Profile						
Organisation / Institution		Designation		Duration		Role
Department of Botany, University of Delhi		Assistant Professor		Nov 2009 till date		Teaching and Research
Administrative Assignments						
Member, Committee of Courses for PG and UG courses						
Member, Swachata Abhiyaan Committee						
Member, Gender Sensitization committee						
Member, Committee to prevent racial discrimination and harassment of students from North-Eastern Region of India.						
Member, Furniture sub-committee						
Member, Panel of Judges in the Annual flower Show						
Member, Department Promotion Committee (DPC) for Colleges and Departments						
Member, UGC Journal Uploading Committee						
Member, Project Implementation Group for DST-FIST-II						
Member, M.Phil/Ph.D. Course reform committee						

Member, Foreign Students' Registry

Member, Students' Lounge committee

Member, Department Purchase Committee, actively involved in GeM and eProcurement related purchases for the Department.

Member, Grievance Committee for UG/PG/M.Phil/Ph.D. admission 2018-19

Member, Board of Research Studies, Faculty of Sciences 2017-19

Member, Internet restoration committee and others assigned by the Department.

Areas of Interest / Specialization

My research interest revolves around Environmental issues, Biodiversity conservation, Ecology, Ecosystem process and function, Mountain research, biomass and carbon sequestration research in different ecosystems, Environment Impact Assessment, Abiotic stress, Climate change effects and Plant productivity, Soil and plant nutrition.

Subjects Taught

M.Sc. Botany

M. Sc. II, C-VIII-Plant Ecology

BOT 202. Systematics, Evolution & Environmental Science

BOT 304. Principles of Ecology

BOT 306. Bioinformatics, Computational Biology and Biostatistics

BOT 405. Agricultural Ecology: Principles and Applications

BOT 409. M.Sc. Dissertation

M.Phil. course Paper - Population Biology (8A) and Ecological Adaptations (9A)

Ph.D. course work Group 3 (Methods of Field Biology)

M.Phil/Ph.D. course work (2018 onwards Revised).

RM-2. Statistics for Biologists,

EL-2. Community Ecology,

EL-16. Population Ecology

REVIEWER OF INTERNATIONAL AND INDIAN JOURNALS

- 1. Ecological Processes, Springer**
- 2. Journal of Forestry Research, Springer**
- 3. Ecosystem Services, Springer**
- 4. Journal of Biosciences, IAS.. India**
- 5. Phytomorphology, ISPM.. India**

Time table of the subjects taught during the current semester				
S.No.	Subject	Days	Time	Classroom
1	BOT 202: Systematics, Evolution and Environmental Science	(i) Wednesday (Theory & Practical) (ii) Friday (Theory & Practical) (iii) Tuesday (Extra Theory Class)	Theory: 9:40 – 10:35 Practical: 10:35 – 5:00 Extra Theory Class 9:40 – 11:30	Theory: Room 37 Practical: Lab. 22
2	BOT 304: Principles of Ecology	(i) Friday (Theory & Practical)	Theory: 11:30 – 12:25 Practical: 1:20 – 5:30	Theory: Room 37 Practical: Lab. 22
3	BOT 306: Bioinformatics, Computational Biology & Biostatistics	(i) Thursday (Theory & Practical)	Theory: 1:20 – 2:15 Practical: 9:40 – 12:25	Theory: Room 37 Practical: Lab. 22
4	BOT 405: Agricultural Ecology – Principles and Applications	(i) Monday (Theory & Practical)	Theory: (9:40 – 10:35) Practical: 10:35 – 5:00	Theory: Room 207 Practical: Lab. 22
5	BOT 409: M.Sc. Dissertation	Saturday	Lab work in Lab 310	
6	M.Phil. /Ph.D. Course Work RM 2. Statistics for Biologists EL-2. Community Ecology EL-16. Population Ecology	(i) Monday (Theory & Practical) (ii) Tuesday (Theory & Practical) (iii) Thursday (Theory & Practical)	Theory: 10 am -1:00 pm Practical: 2:00 – 5:00	Theory: Committee room Practical: As per the location of equipments/ Computer lab.

Research Guidance

1. Supervision of Doctoral Thesis (Completed)

- i. **Urvashi Tomar (Submitted in July, 2019):** Soil carbon sequestration, microbial activity and nutrient dynamics in semi-arid ridge forest ecosystem of Delhi.

2. Supervision of Doctoral Thesis (Under Progress)

- i. **Shikha Prasad (Regd. 2014)** is working on the “Effect of Climate Change on vital ecosystem processes and functions”.
- ii. **Siddhartha Kaushal (Regd. 2016)** is working on “Quantification of total ecosystem level carbon sequestration potential of different forest ecosystem along an elevational gradient in Uttarakhand, Western Himalaya in different climate scenarios”.
- iii. **Prachi (Regd. 2016)** is working on “Effect of Macronutrient amendments in ameliorating salt stress in few medicinal plants”.

3. Supervision of M.Phil. dissertation with tentative titles (Ongoing)

Anshu Siwach (2018-2019): Understanding the effect of Bryophytic cover on physico-chemical properties of soil in an old growth temperate forest in Garhwal Himalaya, Uttarakhand

4. Supervision of M.Phil. dissertation with titles (Completed)

Ravi Kumar (2019). Biomass and carbon stock assessment using Forest inventory and remote sensing data in temperate and semi-arid forests of India

Rhituporn Saikia (2018). Isolation, identification and characterization of phosphate

Solubilizing bacteria from different agricultural crop soils of Delhi.

Rajan Rathore (2018). Carbon and nutrient dynamics in different agricultural crops of Delhi.

Ekta (2014) Ecological study of the Delhi Ridge Forest Ecosystem.

Aftab Hassan (2014) Soil carbon pool and CO₂ efflux studies in the Delhi Ridge Forest Ecosystem.

5. Supervision of M.Sc. dissertation (Completed)-----29

6. Supervision of Undergraduate and Masters Summer Internship-----4

Publications Profile

Tomar, U. and Baishya, R. 2019. Moisture regime influence soil carbon stock and carbon sequestration rate in Semi-arid forest of National capital region (NCR), India. (**Accepted and in Press**). Journal of Forestry Research, Springer.

Tomar, U. and Baishya, R. 2019. Seasonal dynamics of soil microbial biomass carbon, enzyme activities and soil respiration in semi-arid forest of India. (**Under Review**) Ecological Research. Springer.

Prasad, S. and Baishya, R. 2019. Interactive effects of soil moisture and temperature on soil respiration under native and non-native tree species in semi-arid forest of Delhi, India. (**Under Review**) Tropical Ecology, Springer.

Prasad, S. and Baishya, R. 2019. Relative contribution of native and non-native tree species on soil nitrogen transformation rates in semi-arid forest of India. (**Under Review**). Journal of Forestry Research, Springer.

Saikia, R. and Baishya, R. 2019. Carbon sequestration as an ecosystem service: prospects of REDD+ projects in North-East India *In: Dhall et al. (Eds) North East India: Issues and challenges.* Bookwell Publications, New Delhi pp 1-10

Saikia, R. and Baishya, R. 2019. Phosphate Solubilizing Bacteria isolated from crop soils of Delhi shows mineral phosphate solubilizing ability *In: Bikarma Singh (Ed.) Plants for Human Survival and Medicine, New India Publishing Agency, New Delhi.* pp. 275-282.

- Sharma, P and Baishya, R. 2019. Plant growth promoting bacteria as a potent tool in amelioration of salinity stress: A Review *In: Bikarma Singh (Ed.) Plants for Commercial Values*, New India Publishing Agency, New Delhi. pp 211-227.
- Saikia, R. and Baishya, R. 2018. Phosphate Solubilizing Bacteria in certain agricultural crop soils of Delhi. *International Journal of Plant and Environment*. Vol. 4, No. 1 (January, 2018): 70-75.
- Prasad, S and Baishya, R. 2017. Nitrogen Mineralization in Terrestrial Ecosystem. *The Botanica* 67: 61-66.
- Kaushal, S and Baishya, R. 2017. Old-growth Forests as Carbon Reservoirs: A Review of Garhwal Himalayas. *The Botanica* 67: 97-105.
- Sharma, P and Baishya, R. 2017. Phosphate Solubilizing Bacteria-Assisted Salinity Tolerance in Plants: A Review. *The Botanica* 67: 77-83
- Tomar, U and Baishya, R. 2017. Land Use Changes and Soil Carbon Sequestration in Mitigation of Climate Change. *The Botanica* 67: 87-93.
- Saikia, R and Baishya, R. 2017. Mechanisms and Genetics of Mineral and Organic Phosphate Solubilization by Phosphate Solubilizing Bacteria. *The Botanica* 67: 47-53.
- Kathal, R., Chaudhary, V., Kumar, L., Puri, A., Baishya, R. and Uniyal, P.L. 2016. Pollution Status of Yamuna River in India: A national concern. *International Research Journal of Environmental Sciences* 5 (12): 1-6.
- Hasan, A. & Baishya, R. (2016). An allometry-based approach for understanding the biomass and carbon distribution in Delhi ridge forest Ecosystem. *In: Biodiversity and Environmental Conservation* (Krishna Upadhaya ed.) pp. 14-28.
- Sharma, D and Baishya, R. 2016: Plant Canopy Architecture and Models: A Review. *Botanica* 66: 42-52.
- Baishya, R. & Barik, S.K. 2015. Ecosystem level carbon and net primary productivity of old-growth and regenerating humid tropical forest of North-Eastern India. *International Journal of Plant and Environment* 1(1) DOI: <http://dx.doi.org/10.18811/ijpen.v1i1.7117>
- Baishya, R. (2015). REDD⁺ and its concerns in Indian Prospective. *The Botanica* 64 & 65: 15-16.
- Baishya, R. and Barik, S.K. 2011. Estimation of tree biomass, carbon pool and net primary production of an old-growth *Pinus kesiya* Royle ex. Gordon forest in north-eastern India. *Annals of forest Science*. 68: 727-736.
- Thapa, N., Upadhaya, K., Baishya, R. and Barik, S.K. 2011. Effect of Plantation on Plant Diversity and Soil Status of Tropical Forest Ecosystems in Meghalaya, Northeast India. *International Journal of Ecology and Environmental Sciences* 37 (1): 61-73.

- Barik, S.K. Lakadong, N.J., Baishya, R., Chettri, A., Das, P. Kayang, H. and Marbaniang, D. 2009. A new record of *Monotropa hypopitys* L., a mycoheterotrophic plant for India. *Journal of Bombay Natural History Society* 106(1): 127-129.
- Baishya, R., Barik, S.K. and Upadhaya, K. 2009. Distribution pattern of aboveground biomass in natural and plantation forests of humid tropics in northeast India. *Tropical Ecology* 50(2): 295-304.
- Upadhaya, K., Barik, S.K., Adhikari, D., Baishya, R. and Lakadong, N.J. 2009. Regeneration ecology and population status of a critically endangered and endemic tree species (*Ilex khasiana* Purk.) in north-eastern India. *Journal of Forestry Research* 20(3): 223-228.
- Khar Lyngdoh, E. and Baishya, R. 2009. People's perception on climate change: A case study from Meghalaya *In: Reflections of Climate Change Leaders from the Himalayas*. Organized by British High Commission-New Delhi and LEAD India, pp. 115-136.

Publications in the Last one year

- Tomar, U. and Baishya, R. 2019. Moisture regime influence soil carbon stock and carbon sequestration rate in Semi-arid forest of National capital region (NCR), India. **(Accepted and in Press)**. *Journal of Forestry Research*, Springer
- Tomar, U. and Baishya, R. 2019. Seasonal dynamics of soil microbial biomass carbon, enzyme activities and soil respiration in semi-arid forest of India. **(Under Review)** *Ecological Research*. Springer.
- Prasad, S. and Baishya, R. 2019. Interactive effects of soil moisture and temperature on soil respiration under native and non-native tree species in semi-arid forest of Delhi, India. **(Under Review)** *Tropical Ecology*, Springer.
- Prasad, S. and Baishya, R. 2019. Relative contribution of native and non-native tree species on soil nitrogen transformation rates in semi-arid forest of India. **(Under Review)**. *Journal of Forestry Research*, Springer.
- Saikia, R. and Baishya, R. 2019. Carbon sequestration as an ecosystem service: prospects of REDD+ projects in North-East India *In: Dhall et al. (Eds) North East India: Issues and challenges*. Bookwell Publications, New Delhi pp 1-10
- Saikia, R. and Baishya, R. 2019. Phosphate Solubilizing Bacteria isolated from crop soils of Delhi shows mineral phosphate solubilizing ability *In: Bikarma Singh (Ed.) Plants for Human Survival and Medicine*, New India Publishing Agency, New Delhi.) pp. 275-282.

Sharma, P and Baishya, R. 2019. Plant growth promoting bacteria as a potent tool in amelioration of salinity stress: A Review *In: Bikarma Singh (Ed.) Plants for Commercial Values*, New India Publishing Agency, New Delhi. pp 211-227.

Saikia, R. and Baishya, R. 2018. Phosphate Solubilizing Bacteria in certain agricultural crop soils of Delhi. *International Journal of Plant and Environment*. Vol. 4, No. 1 (January, 2018): 70-75.

Conference Organization/ Presentations (in the last three years) ORAL and POSTER

ORAL PRESENTATION

- Baishya, R. 2019. Climate change and trends in Carbon Sequestration research. Invited talk in Prakriti, the environmental society at Lady Shri Ram College for Women on 4th April, 2019.
- Baishya, R. and Barik, S.K. 2018. Ecosystem carbon pool and net primary production in a tropical matured forest of North East India. 6th International Conference on Plants and Environmental Pollution (ICPEP-6), NBRI, Lucknow, November 27-30, 2018.
- Kaushal, S and Baishya, R. 2018. Species diversity and Carbon Stock in three temperate forest types of Garhwal Himalayas, Uttarakhand – India. 6th International Conference on Plants and Environmental Pollution (ICPEP-6), NBRI, Lucknow, November 27-30, 2018.
- Baishya, R. 2018. Ecosystem Ecology. Invited talk in Kalindi College Botanical Society, University of Delhi on 8th October 2018.
- Baishya, R. 2018. Carbon sequestration and REDD+ mechanism as mitigation strategies to climate change. National workshop on recent trends in plant ecophysiology, University of Jammu, J & K on 6th March, 2018.
- Baishya, R. 2017. Carbon sequestration as an ecosystem service: prospects of REDD+ projects in north-east India. National Conference on “Environment, Sustainable Development and Future Perspective in Northeast India: Emic and Etic Dynamics” 2nd - 3rd October, 2017, Department of Anthropology University of Delhi, Delhi-110007

POSTER PRESENTATION

- Siwach, A., Kaushal, S. and Baishya, R. 2019. Understanding the effect of Bryophytic cover on physico-chemical properties of soil in an old growth temperate forest in Garhwal Himalaya, Uttarakhand. National Seminar on 'Biodiversity: Issues challenges and opportunities' CCS Haryana Agricultural University, Hisar, India, July 16-17, 2019.
- Kumar, R. and Baishya, R. 2019. Biomass and Carbon stock estimation using forest inventory and remote sensing data in temperate forests of India. International conference on Global environmental challenges Human health and sustainable development. Organised by ESDACON at JNU, Delhi 11-13 January, 2019.

- Saikia, R. and Baishya, R. 2017. Characterization of Phosphate Solubilizing Bacteria (PSB) isolated from agricultural crop soils of floodplains of Yamuna, Delhi. 86th Conference of Society of Biological Chemists. Emerging Discoveries in Health and Agricultural Sciences, School of Life Science, JNU during 16th -19th November, 2017
- Saikia, R. and Baishya, R. 2017. Use of Phosphate Solubilizing Bacteria as a potent biofertilizer in agriculture. XXVII Annual conference of Indian Association for Angiosperm Taxonomy & International Symposium on “plant systematics: priorities and challenges”, held in Department of Botany, University of Delhi during 10-12 November, 2017.
- Tomar, U. and Baishya, R. 2017. Seasonal Dynamics of Soil Respiration and its Dependence on Temperature and Moisture in Semi-Arid Forest Ecosystem of Delhi, NCT. XXVII Annual conference of Indian Association for Angiosperm Taxonomy & International Symposium on “plant systematics: priorities and challenges”, held in Department of Botany, University of Delhi during 10-12 November, 2017.
- Prasad, S. and Baishya, R. 2017. Impact of climatic factors on soil nitrogen mineralization rates across native and non-native tree species of Delhi-ridge. XXVII Annual conference of Indian Association for Angiosperm Taxonomy & International Symposium on “plant systematics: priorities and challenges”, held in Department of Botany, University of Delhi during 10-12 November, 2017.
- Tomar, U. and Baishya, R. 2016. Effect of different moisture regimes on soil carbon pool in semi-arid ridges of Delhi, NCT. *Young Ecologist Talk and Interact (YETI)*. Amity University Campus, Sec-125, Noida, U.P-201301 held on 19th January, 2016.
- Prasad, S. and Baishya, R. 2016. Seasonal variation in nitrogen mineralization under two tree species of semi-arid region of North-India. *Young Ecologist Talk and Interact (YETI)*. Amity University Campus, Sec-125, Noida, U.P-201301 held on 19th January, 2016.
- Tomar, U. and Baishya, R. 2016. Effect of different moisture regimes on the pool size of soil carbon and microbial biomass carbon in semi-arid ridges of Delhi. Society for Plant Research (VEGETOS) and Department of Botany, University of Delhi held in Department of Botany, University of Delhi, 5 – 7th February, 2016.
- Prasad, S. and Baishya, R. 2016. Effect of native and non-native tree species on vital ecosystem functions and processes under semi-arid region of North-India. Society for

Plant Research (VEGETOS) and Department of Botany, University of Delhi held in Department of Botany, University of Delhi, 5 – 7th February, 2016.

Research Projects (Major Grants/Research Collaboration)

1. A biotechnological approach to elucidate adaptation mechanism, migration pattern and reproductive biology of indicator temperate alpine plants in Himalayas in response to changing climate (All India coordinated research project) 2019-2022. Funding Agency DBT, Co-Principal Investigator.
2. Diversity and performance of key forest tree species and bryophytes in gap and non-gap areas along an altitudinal gradient in Uttarakhand (2018-2021) (Ongoing). Funding Agency DST-SERB, Co-Principal Investigator.
3. Quantifying the total ecosystem level carbon sequestration potential of different forest ecosystem along an elevational gradient in Uttarakhand, Western Himalaya in different climate scenarios. (2017-2021) (Ongoing). Funding Agency DST-SERB, Principal Investigator.
4. Dynamics of Soil Microbial Communities in Response to Projected Changing Temperatures due to Climate Change and Influence of Plants in Various Agro-climatic Regions” DU-DST-PURSE Grant 2nd Phase. 2014-2018 (Ongoing), Co- Principal Investigator.
5. Soil carbon sequestration in the Ridge forest Ecosystem of Delhi NCT (Nov. 2013- Oct. 2016), Funding Agency DST-SERB. (Completed), Principal Investigator.

Awards and Distinctions

CSIR-NET-JRF 2004-2006
CSIR-NET-SRF 2006-2009
DST-Young Scientist 2013

Association With Professional Bodies

Life member of Delhi University Botanical Society (DUBS), Delhi, India

Other Activities

Any assigned by the Department of Botany and Examination branch from time to time.



Signature of Faculty Member

- You are also requested to also give your complete resume as a DOC or PDF file to be attached as a link on your faculty page.