Project Update: February 2021

Activities Completed

16/02/2021
Activity: Dragonfly survey
Dragonflies were sampled by opportunistic visual encounter along Sunmoge River, from the Igele area to Sunmoge between N06.60074: E004.286502 and N06.59615: E004.27904. Species collected were photographed and released. Photos were compiled and the species were identified from the photos.

Rationale: The survey was done to know the species of Odonata present and also to monitor the population of the endangered *Ceriagrion citrinum* (See table 2).

Result: two males of the endangered *Ceriagrion citrinum* were found. A total of 12 species of dragonflies were observed.

17/02/2021
Activity: Community entry
Sunmoge community was visited by the project team and questionnaire was administered.

Rationale: The visit was meant to engage the residents of Sunmoge in the protection of their biodiversity especially the endangered *Ceriagrion citrinum.*

Result: The people accepted the project and began to participate in the project activities by offering information collected by questionnaire.

17/02/2021
Activity: Information sharing
Photos of dragonflies from the survey were shared via the personal social media platforms of Ekpah Ojonugwa.

Rationale: This is to create publicity about the project as well as to attract potential tourists to Sunmoge.

Result: The social media audience were intrigued by the photos with 30 likes so far.

20-30/02/2021
Activity: Analysis of Questionnaire
Questionnaire was analysed statistically (kindly find attached).
Rationale: Questionnaire was used to collect data on dragonfly ecological knowledge of Sunmoge residents.

Result: 92 % of respondents agreed that planting new trees will enrich the forest and also that the planted tree seedlings will be well protected by them. Tree planting in Sunmoge forest is one of the activities of this present project.

At the end of the project, the analysis will reveal:

1. Whether the ecological knowledge of dragonflies is related to anthropogenic behavior of the residents of Sunmoge.
2. Whether there were changes in ecological knowledge of dragonflies after the project implementation phase.

Table 1. Species List

Family	**Species**	**No. Collected**
Coenagrionidae	*Ceriagrion citrinum* Campion, 1914	2
	Ceriagrion glabrum (Burmeister, 1839)	3
Libellulidae	*Chalcostephia flavifrons* Kirby, 1889	1
	Hemistigma albipunctum Rambur, 1842	3
	Orthetrum julia Kirby, 1900	1
	Orthetrum stemmale (Burmeister, 1839)	2
	Tholymis tillarga Hagen, 1861	2
	Trithemis aconita Lieftinck, 1969	1
	Trithemis dichroa Karsch, 1893	1
	Urothemis assignata Selys, 1872	2
	Urothemis edwardsii Selys, 1849	3
	Urothemis venata Dijkstra unpub.	3

Table 2. No. of *C. citrinum* sighted in 2021 in Sunmoge

Month	**GPS**	**Number**
January	-	0
February	N06.60074: E004.286502	2
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

Proposed activities for March

1. Exclusive Interview with the *Baale* (Chief) of Sunmoge.
2. Distribution of project materials to community children who are pupils of Sunmoge School.
3. Water quality test.
4. Dragonfly survey.

Figure 1. *Ceriagrion citrinum* in Sunmoge ©Ekpah Ojonugwa

Figure 2. Ekpah Ojonugwa and Ibukun Lawal A. presenting project T-shirts and wines to the Baale (Chief) of Sunmoge ©Clifford Omonu

Figure 3. Ekpah Ojonugwa administering questionnaire to residents of Sunmoge ©Ibukun Lawal A.

Figure 4. Ibukun Lawal A. administering questionnaire to residents of Sunmoge ©Ekpah Ojonugwa.

Figure 4. Ekpah Ojonugwa, Clifford Omonu. Augustine Ikwunne and Ibukun Lawal A. in Sunmoge ©Okpeyemi Adeyemi

Questionnaire Analysis

The natural habitats of West African endemic Odonata are so degraded that they now survive only in the small fragments of natural forests. This is caused by impact of deforestation, dams and mining water on freshwater ecosystems (Ekpah et al., 2020). Most protected areas are managed based on objectives related to scientific ecological knowledge of species and ecosystems (Cebrián-Piqueras et al., 2020). However, knowledge of the ecological role of dragonflies remains in literature and are not translated to residents living near forests where the dragonflies are dominant. Face-to-face survey by questionnaire was used to gather demographic and scientific data based on the hypothesis that the role of dragonflies and ecological knowledge of residents of Sunmoge where the endangered *Ceriagrion citrinum* is found is insignificant. This could be the reason for the anthropogenic activities that put pressure on *C. citrinum* and other odonata in the area.

Where respondents are unable to understand English language, questions are interpreted in their dialect. Of the total of 25 respondents, 40 % of the residents are timber contractors indicating that the felling of trees is high in the area. Questionnaire will be administered after the capacity building and will be used as a means of monitoring and evaluation. A comparison will be made between residents' knowledge of the ecological role dragonflies before and after the project implementation phase.

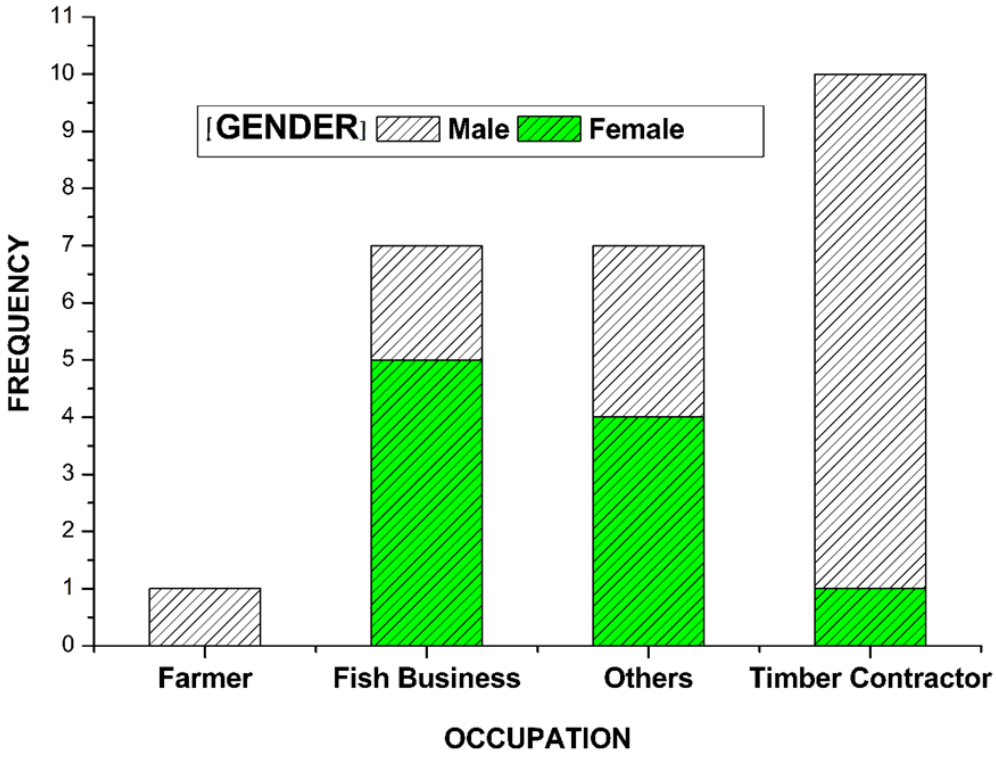

Figure 1. Gender and occupation of residents of Sunmoge.

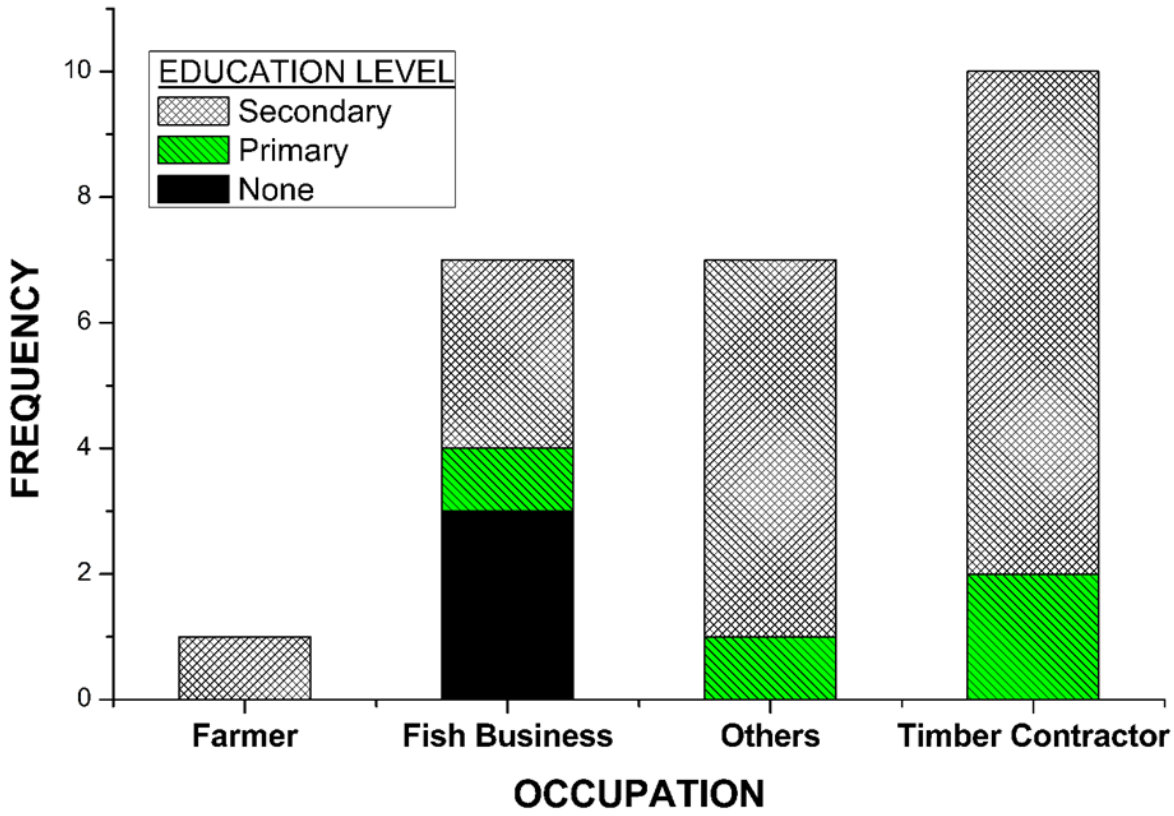

Figure 2. Occupation and educational level of residents of Sunmoge

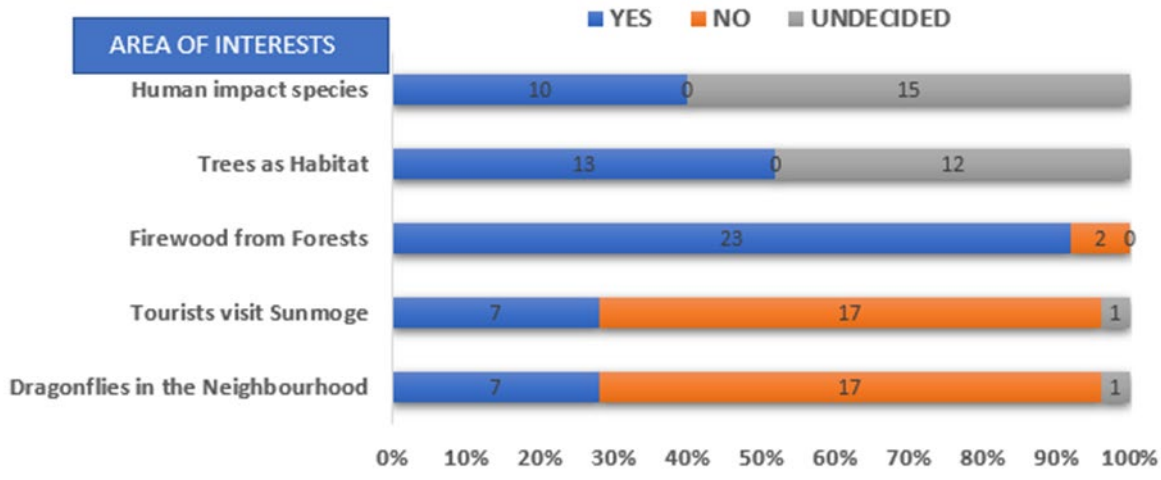

Figure 3. Perception of Residents to anthropogenic behavior

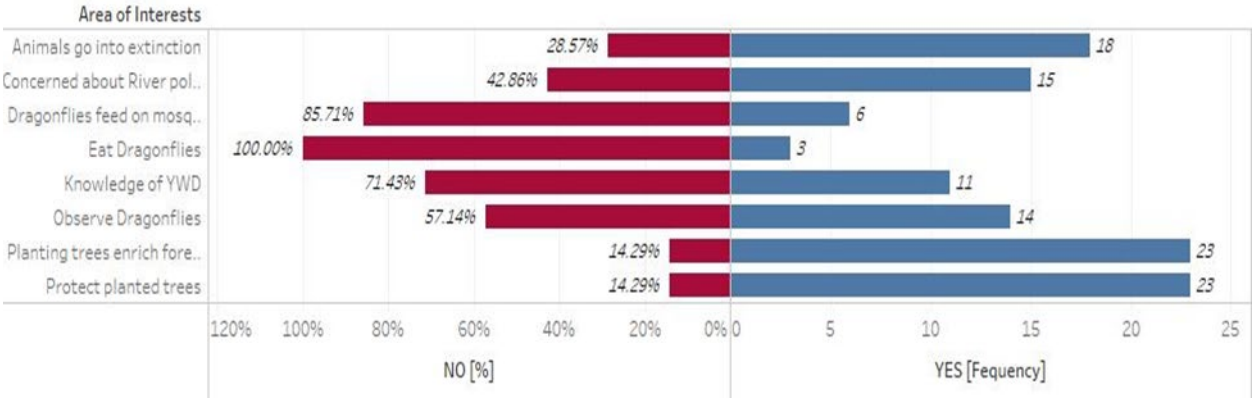

Figure 4. Response of residents to anthropogenic behavior

Table 1. Percentage of responses to different criteria

Criteria	Before project implementation		After project implementation	
Seasonal abundance	Wet	72%	Wet	
	Dry	16%	Dry	
	Both	4%	Both	
	Undecided	8%	Undecided	
Ecological Value of dragonflies	No	87.5%	No	
	Not sure	4.17%	Not sure	
	Yes	8.33%	Yes	
Traditional use	No	91.67%	No	
	Yes	8.33%	Yes	

References

Cebrián-Piqueras, M. A., Filyushkina, A., Johnson, D. N., Lo, V. B., López-Rodríguez, M. D., March, H., Oteros-Rozas, E., Peppler-Lisbach, C., Quintas-Soriano, C., Raymond, C. M., Ruiz-Mallén, I. van Riper, C. J., Zinngrebe, Y. and Plieninger, T. (2020). Scientific and local ecological knowledge, shaping perceptions towards protected areas and related ecosystem services. Landscape Ecology 35, 2549–2567. https://doi.org/10.1007/s10980-020-01107-4

Ekpah, O., Kemabonta, K. A. Ogbogu, S. S. and Fomekong-Lontchi, (2020). Records of lost and associated species of Odonata in Cross River National Park, Nigeria. Odonatologica 49(3/4):245-258.

Appendix

Key
frequency
row percentage

Gender		Occupation			Total
	Farmer	Other	Fish sell	Timber co	
Female	0	4	5	1	10
	0	40.00	50.00	10.00	100.00
Male	1	3	2	9	15
	6.67	20.00	13.33	60.00	100.00
Total	1	7	7	10	25
	4.00	28.00	28.00	40.00	100.00

Gender		Occupation			Total
	Farmer	Other	Fish sell	Timber co	
Female	0	4	5	1	10
Male	1	3	2	9	15
Total	1	7	7	10	25
Pearson chi2(3) = 8.1548 Pr = 0.043					

Gender		Occupation			Total
	Farmer	Other	Fish sell	Timber co	
None		0	3	0	3
Primary	0	1	1	2	4
Secondary	1	6	3	8	18
Total	1	7	7	10	25
Pearson chi2(6) = 9.2063 Pr = 0.162					

1. Have you been observing dragonflies?

Observe Dragonflies	Freq.	Percent	Cum.
No	11	44.00	44.00
Yes	14	56.00	100.00
Total	25	100.00	

2. Do you know the Yellow waxtail damselfly?

Do you know YWD?	Freq.	Percent	Cum.
No	14	56.00	56.00
Yes	11	44.00	100.00
Total	25	100.00	

3. Do you know that Dragonflies feed on mosquitoes

Dragonflies feed on Mosquitoes	Freq.	Percent	Cum.
Undecided	1	4.00	4.00
No	18	72.00	76.00
Yes	6	24.00	100.00
Total	25	100.00	

4. Do you know that animals can go into extinction if there are not protected?

Animal Extinction	Freq.	Percent	Cum.
No	7	28.00	28.00
Yes	18	72.00	100.00
Total	25	100.00	

5. Do you worry about the rate of pollution of the Sunmoge section of the river?

River Pollution	Freq.	Percent	Cum.
No	10	40.00	40.00
Yes	15	60.00	100.00
Total	25	100.00	

6. Do you think planting new trees will help to enrich our forest?

Trees enrich forests	Freq.	Percent	Cum.
No	2	8.00	8.00
Yes	23	92.00	100.00
Total	25	100.00	

7. Do you eat dragonflies?

Eat Dragonflies	Freq.	Percent	Cum.
No	21	84.00	84.00
Yes	3	12.00	96.00
Undecided	1	4.00	100.00
Total	25	100.00	

8. Will the planted seedlings be well protected?

Protect seedlings	Freq.	Percent	Cum.
No	2	8.00	8.00
Yes	23	92.00	100.00
Total	25	100.00	

9. When you see a swarm of dragonflies what does it mean to you?

Dragonflies in neighborhood	Freq.	Percent	Cum.
No	17	68.00	68.00
Yes	7	28.00	100.00
Undecided	1	4.00	72.00
Total	25	100.00	

10. Does tourist visit Sunmoge to watch nature?

Tourists visit Sunmoge	Freq.	Percent	Cum.
No	7	28.00	28.00
Yes	17	68.00	100.00
Undecided	1	4.00	32.00
Total	25	100.00	

11. Do you cut down trees in the forest for firewood?

Firewood from forests	Freq.	Percent	Cum.
No	2	8.00	8.00
Yes	23	92.00	100.00
Total	25	100.00	

12. Do you know that the trees provide refuge for dragonflies?

Trees as habitat	Freq.	Percent	Cum.
Not sure	12	48.00	48.00
Yes	13	52.00	100.00
Total	25	100.00	

13. Do you know that the regular movement on the Sunmoge river affect the species of dragonflies?

Human impact species	Freq.	Percent	Cum.
Not sure	15	60.00	60.00
Yes	10	40.00	100.00
Total	25	100.00	

14. Does dragonfly have any value to us?

Value	Freq.	Percent	Cum.
No	21	87.50	87.50
Yes	2	8.33	100.00
Undecided	1	4.17	91.67
Total	24	100.00	

15. What is the traditional believe attributed to dragonflies here?

Belief	Freq.	Percent	Cum.
Not sure	23	95.83	95.83
Yes	1	4.17	100.00
Total	24	100.00	

16. Are dragonflies used for magic or charms?

Fetish	Freq.	Percent	Cum.
No	22	91.67	91.67
Yes	1	4.17	95.83
	1	4.17	100.00
Total	24	100.00	

17. When you see a swarm of dragonflies what does it mean to you?

Significance	Freq.	Percent	Cum.
Nothing	24	100.00	100.00
Total	24	100.00	100.00

18. When do you see more of dragonflies…. raining season or dry season?

Season	Freq.	Percent	Cum.
Dry	4	16.00	16.00
Not sure	2	8.00	24.00
Wet	18	72.00	96.00
Wet/Dry	1	4.00	100.00
Total	25	100.00	