Supplementary Materials: Deep Learning Image Analysis Tools to Identify Malaria Vector Habitats in West Africa

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Class	CV	FP	FN	TN	FP	Precision	Recall	Dice
Vegetated water body	1	0.31	0.17	0.19	0.33	0.52	0.66	0.54
	2	0.16	0.17	0.20	0.47	0.73	0.73	0.65
	3	0.31	0.06	0.16	0.47	0.60	0.89	**0.67**
	Avg.	0.26	0.13	0.18	0.42	0.61	0.76	0.62
Tillage	1	0.11	0.04	0.18	0.67	0.86	0.94	**0.88**
	2	0.09	0.11	0.20	0.59	0.86	0.84	0.81
	3	0.11	0.06	0.18	0.65	0.85	0.92	0.86
	Avg.	0.10	0.07	0.19	0.64	0.86	0.90	0.85
Roads	1	0.07	0.10	0.63	0.20	0.74	0.65	**0.66**
	2	0.06	0.09	0.69	0.16	0.76	0.65	0.66
	3	0.20	0.17	0.44	0.19	0.50	0.53	0.46
	Avg.	0.11	0.12	0.59	0.18	0.67	0.60	0.59
Non-vegetated water body	1	0.01	0.75	0.09	0.15	0.94	0.16	0.22
	2	0.36	0.01	0.01	0.62	0.64	0.98	**0.74**
	3	0.44	0.00	0.01	0.55	0.56	0.99	0.68
	Avg.	0.27	0.26	0.03	0.44	0.71	0.63	0.55
Crops	1	0.09	0.09	0.17	0.65	0.87	0.88	0.84
	2	0.12	0.04	0.15	0.68	0.85	0.94	0.87
	3	0.07	0.07	0.17	0.69	0.90	0.91	**0.88**
	Avg.	0.10	0.07	0.17	0.67	0.87	0.91	0.86
Building	1	0.04	0.07	0.61	0.29	0.88	0.80	**0.82**
	2	0.05	0.08	0.60	0.27	0.85	0.77	0.75
	3	0.08	0.05	0.58	0.29	0.80	0.86	0.81
	Avg.	0.06	0.07	0.60	0.28	0.84	0.81	0.79

Table 1: Results of the classification process using the U-Net architecture used for 512x512 pixels patch size, where the best fold is reported in bold font. The results are reported in terms of cross validation (CV), false positives (FP), false negatives(FN), true negatives (TN), true positives (TP), precision, recall, and Dice.

Class	CV	FP	FN	TN	TP	Precision	Recall	Dice
Vegetated water body	1	0.44	0.01	0.03	0.52	0.54	0.98	0.66
	2	0.20	0.07	0.31	0.43	0.69	0.84	**0.73**
	3	0.07	0.16	0.29	0.48	0.81	0.67	0.66
	Avg.	0.24	0.08	0.21	0.48	0.68	0.83	0.68
Non-vegetated water body	1	0.08	0.51	0.37	0.05	0.36	0.08	0.11
	2	0.07	0.06	0.03	0.84	0.92	0.93	**0.91**
	3	0.08	0.49	0.30	0.13	0.71	0.21	0.28
	Avg.	0.08	0.35	0.23	0.34	0.66	0.41	0.43
Crops	1	0.05	0.26	0.24	0.45	0.77	0.58	0.59
	2	0.05	0.26	0.24	0.44	0.77	0.58	**0.59**
	3	0.03	0.54	0.31	0.12	0.62	0.16	0.18
	Avg.	0.04	0.35	0.26	0.34	0.72	0.44	0.45
Building	1	0.02	0.05	0.64	0.29	0.93	0.84	**0.86**
	2	0.03	0.06	0.62	0.30	0.91	0.83	0.85
	3	0.04	0.06	0.61	0.30	0.86	0.83	0.81
	Avg.	0.03	0.06	0.62	0.30	0.90	0.83	0.84

Table 2: Results of the classification process using the Attention U-Net architecture used for 512x512 pixels patch size, where the best fold is reported in bold font. The results are reported in terms of cross validation (CV), false positives (FP), false negatives(FN), true negatives (TN), true positives (TP), precision, recall, and Dice.

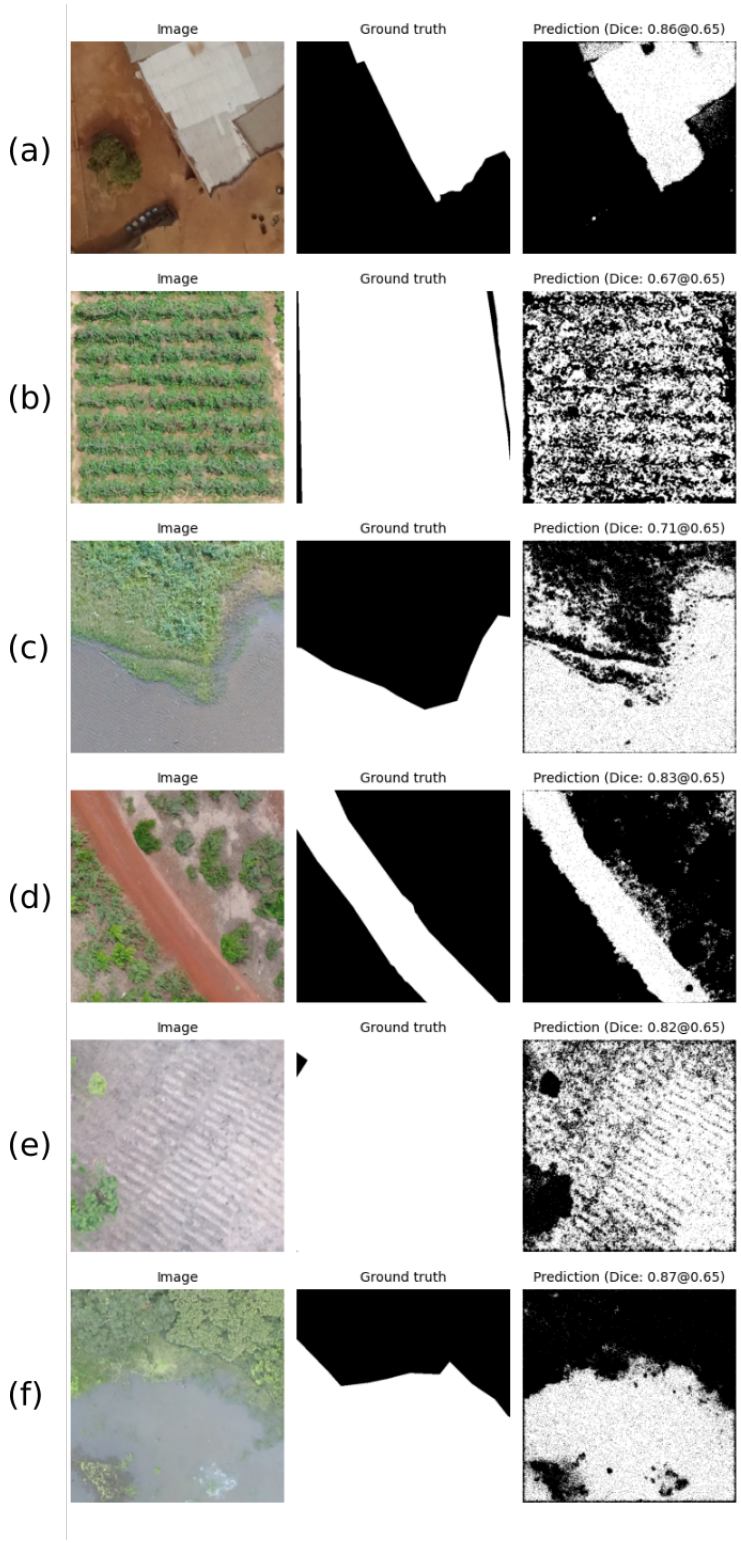

Figure S1. Predictions using the UNet architecture for patches of size 512×512 pixels. (a) Buildings. (b) Crops. (c) Non-vegetated water bodies. (d) Roads. (e) Tillage. (f) Vegetated water bodies.

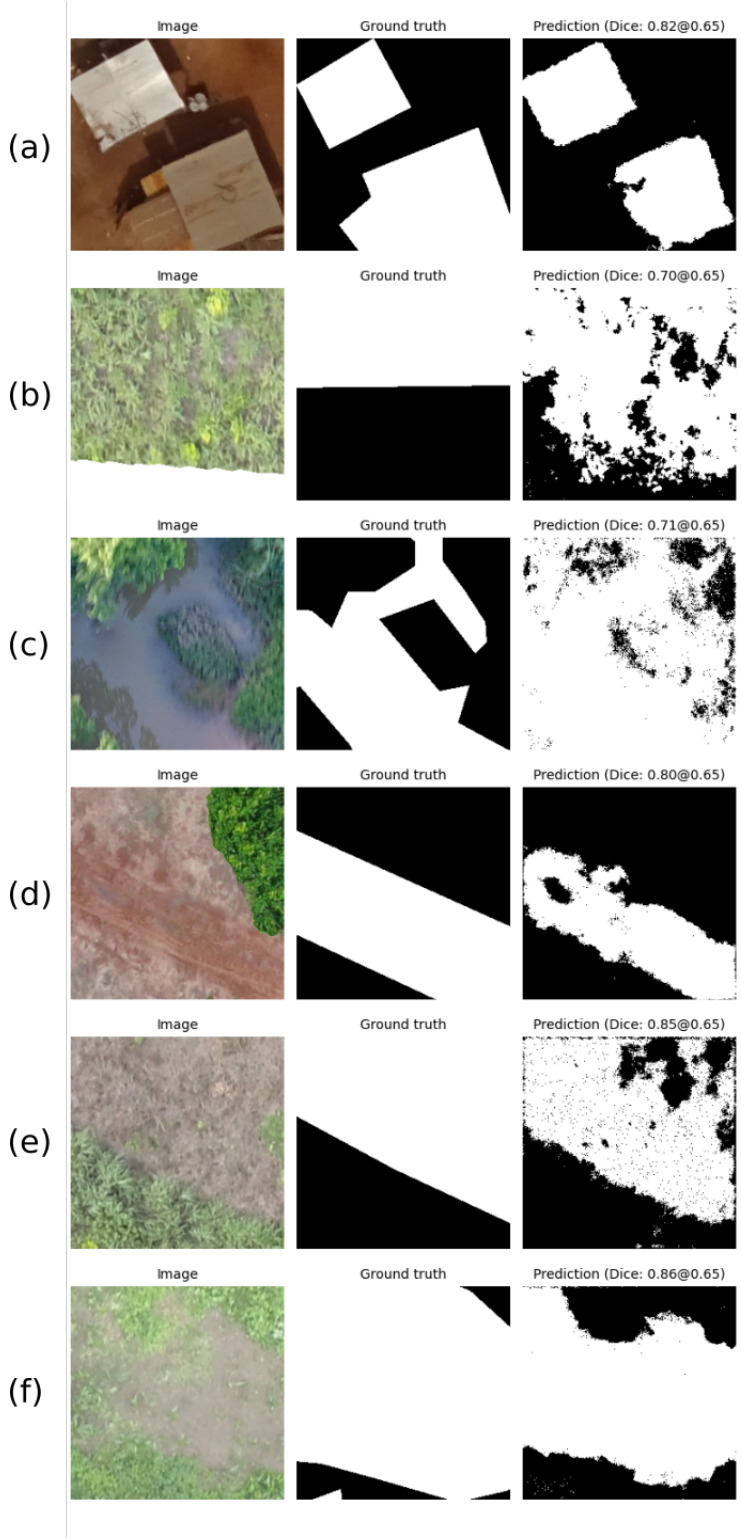

Figure S2. Predictions using the Attention U-Net architecture for patches of size 256×256 pixels. (a) Buildings. (b) Crops. (c) Non-vegetated water bodies. (d) Roads. (e) Tillage. (f) Vegetated water bodies.