Supplementary Table S1 for Robotic Ecology: Tracking Small Dynamic Animals with an Autonomous Aerial Vehicle

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Table S1: Observation errors and times for human and robot trackers. To obtain the following data, eight trials were completed at four different sites. At each site, a novice and a human tracker were compared against the robot independently. In each subtable, the first row lists the observation number and the time that the observation was completed by the robot. The second row provides the absolute difference between the robot's estimate of the target's location and its true position. The last row provides the distance between the human tracker and the target at the observation time. The human trackers reduced their error to 0 m after the final observations, thus the final position error of humans is not included in this table. However, for the results reported in S1(a) and S1(b), the final position of the bird was not able to be confirmed due to loss of visual confirmation. Robot observation error is not monotonically decreasing due to observation noise caused by factors such as strong winds disturbing the robot's position, and also movement of the target bird.

(a) Trial 1 (site 1) with unknown final position.

Observation # [Time (s)]	0 [0.00]	1 [47.30]	2 [156.45]	3 [257.21]	4 [339.30]
Robot error (m)	253.94	138.70	122.89	140.65	140.65
Novice human error (m)	246.86	196.79	64.55	23.42	1.84

(b) Trial 2 (site 1) with unknown final position.

Observation # [Time (s)]	0 [0.00]	1 [59.71]	2 [288.67]	3 [397.23]
Robot error (m)	305.28	364.76	112.36	112.36
Expert human error (m)	293.83	168.63	12.44	12.44

(c) Trial 3 (site 2) with known final position.

Observation # [Time (s)]	0 [0.00]	1 [46.29]	2 [164.15]	3 [266.66]	4 [352.54]	5 [433.90]
Robot error (m)	206.61	111.50	32.39	32.39	39.76	39.76
Novice human error (m)	195.35	182.25	123.87	67.92	23.53	11.90

(d) Trial 4 (site 2) with known final position.

Observation # [Time (s)]	0 [0.00]	1 [47.51]	2 [158.26]	3 [239.11]	4 [320.96]	5 [400.94]
Robot error (m)	275.57	49.25	83.47	52.40	52.40	52.40
Expert human error (m)	265.41	217.29	132.91	51.49	9.64	9.64

Table S1 (cont.):

(a) Trial 5 (site 3) with known final position.

Observation # [Time (s)]	0 [0.00]	1 [46.41]	2 [164.88]	3 [298.68]	4 [393.46]
Robot error (m)	188.60	80.57	51.39	51.39	51.39
Novice human error (m)	193.33	144.16	70.59	2.12	6.19

(b) Trial 6 (site 3) with known final position.

Observation # [Time (s)]	0 [0.00]	1 [47.55]	2 [161.57]	3 [251.04]	4 [330.50]	5 [418.15]
Robot error (m)	165.40	101.85	54.94	54.94	54.94	40.03
Expert human error (m)	167.05	148.45	95.35	67.16	32.21	18.44

(c) Trial 7 (site 4) with known final position.

Observation # [Time (s)]	0 [0.00]	1 [46.46]	2 [152.92]	3 [229.90]	4 [321.72]	5 [411.83]
Robot error (m)	101.98	111.45	13.13	71.78	71.78	71.78
Novice human error (m)	125.21	60.05	13.80	13.80	13.80	13.80

(d) Trial 8 (site 4) with known final position.

Observation # [Time (s)]	0 [0.00]	1 [46.25]	2 [142.71]	3 [227.48]	4 [299.92]
Robot error (m)	124.88	94.65	18.59	40.18	40.18
Expert human error (m)	120.50	110.76	19.77	16.63	19.95