

Appendix 1. Mean Morphological Measurements.

Table A1.1. Mean (with SE) external and internal morphological measurements for scientifically collected Blue-winged Teal at the Richland Creek Wildlife Management Area, Texas, in fall (1 September – 15 November) and spring (1 March – 30 March) in 2004-2004 and 2005-2006. Mass measurements are in g and linear measurements are in mm.

	Adult male			Adult female			Juvenile male			Juvenile female		
	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>
<i>Fall</i>												
Corrected body mass	319.8	19.23	3	342.66	6.13	21	355.94	14.87	11	301.97	7.15	10
	5											
Esophagus-proventriculus length	18.53	2.32	3	17.06	0.81	15	18.18	0.55	9	18.38	0.52	6
Esophagus-proventriculus mass	4.94	0.84	3	3.72	0.33	17	4.22	0.29	9	4.10	0.15	6
Flight muscle mass	35.56	1.86	3	32.45	1.00	17	33.06	1.26	9	24.43	3.66	7
Gizzard mass	15.64	1.62	3	15.45	0.75	17	13.26	0.97	9	15.23	0.58	5
Heart mass	3.30	0.19	3	3.84	0.09	17	4.01	0.10	9	3.30	0.21	6
Intesting length	185.0	10.34	3	164.04	4.33	16	176.31	6.28	9	172.32	11.24	6
	7											
Intestine mass	14.71	0.59	3	18.83	1.26	17	16.59	1.66	9	22.37	2.34	6
Leg muscle mass	10.38	0.63	3	9.48	0.30	17	10.10	0.31	9	9.46	0.51	7
Liver mass	10.39	0.71	3	9.33	0.39	17	9.67	1.05	9	8.74	0.82	6
Mesentery fat mass	0.66	0.56	3	3.50	0.49	17	3.13	0.94	9	1.88	0.54	6
Omental fat mass	2.55	1.99	3	7.52	1.03	17	5.53	1.50	9	2.81	1.54	6
Skin mass	44.64	11.10	3	59.84	4.19	17	57.31	5.44	9	34.94	4.21	7
Visceral fat mass	0.22	0.13	3	0.17	0.03	15	0.14	0.04	8	0.12	0.01	6
<i>Spring</i>												
Corrected body mass	336.7	3.55	61	321.48	9.92	8	328.81	6.41	23	294.15	8.48	7
	6											
Esophagus-proventriculus length	18.97	0.55	34	17.30	0.92	6	20.04	0.42	13	18.64	0.65	5
Esophagus-proventriculus mass	3.85	0.20	43	2.68	0.36	6	4.21	0.20	18	3.61	0.34	5

	Adult male			Adult female			Juvenile male			Juvenile female		
	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>
Flight muscle mass	36.09	0.68	43	36.13	1.50	6	35.80	1.21	18	33.48	2.04	5
Gizzard mass	15.37	0.51	43	16.10	0.92	6	15.43	0.65	18	15.12	1.66	5
Heart mass	3.99	0.12	43	3.78	0.20	6	3.70	0.11	18	3.63	0.22	5
Intestine length	160.9	3.33	42	170.68	7.65	6	161.93	6.43	18	172.12	8.95	5
	1											
Intestine mass	14.55	0.63	43	13.62	2.09	6	15.84	1.06	18	15.86	1.12	5
Leg muscle mass	11.51	0.32	43	10.41	1.16	6	10.90	0.46	18	10.05	0.61	5
Liver mass	7.73	0.32	43	8.57	1.06	6	8.26	0.68	18	6.98	0.30	5
Mesentery fat mass	1.18	0.11	43	1.24	0.42	6	1.33	0.18	18	0.75	0.28	5
Omental fat mass	2.16	0.28	43	1.70	0.45	6	1.98	0.49	18	1.51	0.63	5
Skin mass	39.90	1.69	43	38.57	1.33	6	41.40	2.53	18	34.21	3.67	5
Visceral fat mass	0.13	0.02	38	0.15	0.07	6	0.14	0.02	17	0.09	0.01	5

Table A1.2. Mean (with SE) external and internal morphological measurements in fall (1 September – 15 November), early-winter (16 November – 31 December, late-winter (1 January – 28 February), and spring (1 March – 30 March) for scientifically collected Green-winged Teal at the Richland Creek Wildlife Management Area, Texas, in 2004-2005 and 2005-2006. Mass measurements are in g and linear measurements are in mm.

	Adult male			Adult female			Juvenile male			Juvenile female		
	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>
<i>Fall</i>												
Corrected body mass	307.84	4.17	4	304.41	12.85	3	276.30	23.75	2	260.93	3.46	2
Esophagus-proventriculus length	17.67	1.19	3	13.23	1.87	3	17.25	1.55	2	17.00	-	1
Esophagus-proventriculus mass	3.63	0.30	3	2.15	0.03	3	2.74	0.55	2	3.20	-	1
Flight muscle mass	32.12	1.44	3	31.53	0.79	3	29.75	2.50	2	30.93	-	1
Gizzard mass	13.78	5.63	3	13.89	1.25	3	12.56	2.82	2	15.75	-	1
Heart mass	3.47	0.16	3	3.49	0.23	3	3.61	0.57	2	2.60	-	1
Intesting length	101.53	8.04	3	94.60	9.21	3	93.80	11.70	2	109.80	-	1
Intestine mass	13.85	1.92	3	13.37	4.41	3	10.19	2.14	2	16.33	-	1
Leg muscle mass	8.50	0.38	3	8.47	0.65	3	7.29	0.94	2	7.50	-	1
Liver mass	6.90	0.84	3	6.58	0.75	3	4.16	1.02	2	5.79	-	1
Mesentery fat mass	1.21	0.26	3	1.98	0.51	3	1.21	1.00	2	1.35	-	1
Omental fat mass	2.51	0.67	3	1.14	0.21	3	2.29	0.92	2	1.76	-	1
Skin mass	44.35	3.13	3	40.19	2.54	3	41.53	15.41	2	27.41	-	1
Visceral fat mass	0.08	0.02	3	0.03	0.04	2	0.13	0.07	2	0.05	-	1
<i>Early-winter</i>												
Corrected body mass	323.53	5.97	8	281.10	10.57	5	284.05	9.36	3	286.33	-	1
Esophagus-proventriculus length	18.98	1.09	4	18.00	0.40	2	16.27	1.98	3	17.00	-	1
Esophagus-proventriculus mass	3.58	0.73	4	2.71	0.14	2	2.79	0.64	3	2.67	-	1
Flight muscle mass	32.50	1.68	4	30.34	0.70	4	32.96	1.10	3	29.81	-	1
Gizzard mass	17.67	1.87	4	13.24	0.99	4	15.43	0.48	3	13.41	-	1
Heart mass	4.12	0.14	4	3.60	0.20	4	3.53	0.38	3	4.92	-	1
Intesting length	118.88	16.83	4	102.58	2.55	4	90.83	3.38	3	121.80	-	1
Intestine mass	12.36	3.16	4	9.88	1.32	4	8.57	1.84	3	14.60	-	1
Leg muscle mass	9.04	0.08	4	9.68	0.20	4	9.20	0.74	3	10.48	-	1

	Adult male			Adult female			Juvenile male			Juvenile female		
	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>
Liver mass	6.30	0.66	4	6.96	0.22	4	5.74	0.84	3	9.83	-	1
Mesentery fat mass	0.99	0.46	4	1.04	0.19	4	0.97	0.63	3	0.88	-	1
Omental fat mass	1.79	1.30	4	1.99	0.44	4	0.83	0.27	3	0.94	-	1
Skin mass	44.45	1.37	4	41.24	3.94	4	37.77	7.88	3	28.59	-	1
Visceral fat mass	0.18	0.13	4	0.11	0.04	4	0.17	0.07	3	0.23	-	1
<i>Late-winter</i>												
Corrected body mass	290.67	5.14	22	273.29	14.23	4	275.68	8.70	6	290.60	10.69	2
Esophagus-proventriculus length	17.45	0.48	18	15.95	1.53	4	17.83	0.84	6	14.15	2.15	2
Esophagus-proventriculus mass	2.95	0.16	21	1.96	0.43	4	2.71	0.32	6	2.22	0.49	2
Flight muscle mass	33.91	0.64	21	33.91	1.08	4	32.13	0.95	6	30.32	4.35	2
Gizzard mass	15.91	0.55	21	12.14	0.47	4	14.17	0.36	6	14.22	2.84	2
Heart mass	3.66	0.11	21	3.48	0.08	4	3.75	0.18	6	3.25	0.08	2
Intesting length	109.98	2.93	20	112.60	0.62	4	111.58	7.53	5	91.10	7.10	2
Intestine mass	8.99	0.36	21	9.38	0.48	4	9.83	0.88	5	7.04	1.80	2
Leg muscle mass	10.64	0.32	21	9.72	0.41	4	9.94	0.39	6	9.32	1.35	2
Liver mass	6.02	0.25	21	6.11	0.14	4	5.45	0.38	6	5.00	0.85	2
Mesentery fat mass	1.14	0.22	21	0.62	0.32	4	0.53	0.32	6	1.69	1.21	2
Omental fat mass	1.51	0.45	20	2.92	1.16	4	1.98	0.65	6	2.02	0.34	2
Skin mass	37.29	2.75	21	38.92	7.76	4	35.67	4.76	6	48.21	3.14	2
Visceral fat mass	0.11	0.02	20	0.11	0.04	4	0.11	0.04	6	0.07	0.07	2
<i>Spring</i>												
Corrected body mass	314.68	6.48	24	273.11	20.30	3	300.64	4.62	18	286.37	10.93	9
Esophagus-proventriculus length	16.89	0.72	18	16.40	-	1	17.24	0.80	14	15.00	0.83	6
Esophagus-proventriculus mass	2.97	0.20	20	2.35	-	1	3.28	0.17	17	2.21	0.14	6
Flight muscle mass	34.15	0.77	21	31.09	-	1	33.15	0.56	17	30.12	0.84	6
Gizzard mass	15.46	0.50	21	14.96	-	1	15.16	0.52	17	12.37	0.72	6
Heart mass	3.58	0.13	21	2.86	-	1	3.68	0.11	17	3.32	0.22	6
Intesting length	109.20	2.65	21	89.70	-	1	107.08	3.33	17	105.33	3.74	6
Intestine mass	11.20	0.71	21	7.79	-	1	9.62	0.45	17	10.25	1.07	6

	Adult male			Adult female			Juvenile male			Juvenile female		
	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>
Leg muscle mass	10.86	0.37	21	9.57	-	1	10.83	0.28	17	9.36	0.36	6
Liver mass	6.21	0.27	21	3.61	-	1	6.00	0.35	17	6.93	0.56	6
Mesentery fat mass	1.87	0.75	21	0.39	-	1	1.26	0.20	17	0.32	0.07	6
Omental fat mass	2.34	0.44	21	0.17	-	1	1.08	0.17	17	0.41	0.08	6
Skin mass	48.42	3.10	21	59.00	-	1	46.35	2.09	17	40.90	2.31	6
Visceral fat mass	0.19	0.03	20	0.37	-	1	0.17	0.03	17	0.19	0.03	6

Table A1.3. Mean (with SE) external and internal morphological measurements in fall (1 September – 15 November), early-winter (16 November – 31 December, late-winter (1 January – 28 February), and spring (1 March – 30 March) for scientifically collected Northern Shoveler at the Richland Creek Wildlife Management Area, Texas, in 2004-2005 and 2005-2006. Mass measurements are in g and linear measurements are in mm.

	Adult male			Adult female			Juvenile male			Juvenile female		
	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>
<i>Fall</i>												
Corrected body mass	-	-	-	551.86	37.56	4	-	-	-	506.47	26.04	4
Esophagus-proventriculus length	-	-	-	23.50	2.40	2	-	-	-	14.00	-	1
Esophagus-proventriculus mass	-	-	-	7.29	1.30	2	-	-	-	2.45	-	1
Flight muscle mass	-	-	-	48.54	0.57	2	-	-	-	50.03	-	1
Gizzard mass	-	-	-	21.40	2.31	2	-	-	-	11.80	-	1
Heart mass	-	-	-	5.53	0.74	2	-	-	-	8.09	-	1
Intesting length	-	-	-	298.90	19.50	2	-	-	-	215.00	-	1
Intestine mass	-	-	-	55.77	7.89	2	-	-	-	25.35	-	1
Leg muscle mass	-	-	-	14.89	0.57	2	-	-	-	13.33	-	1
Liver mass	-	-	-	16.78	0.23	2	-	-	-	11.54	-	1
Mesentery fat mass	-	-	-	8.38	4.18	2	-	-	-	8.53	-	1
Omental fat mass	-	-	-	11.50	9.83	2	-	-	-	14.28	-	1
Skin mass	-	-	-	95.41	27.16	2	-	-	-	95.45	-	1
Visceral fat mass	-	-	-	0.14	0.01	2	-	-	-	0.00	-	1
<i>Early-winter</i>												
Corrected body mass	567.94	24.58	4	504.46	18.98	6	488.93	32.39	3	465.31	11.89	8
Esophagus-proventriculus length	25.20	0.90	2	21.77	0.77	3	23.23	1.34	3	21.27	0.73	6
Esophagus-proventriculus mass	6.46	0.38	2	6.46	0.48	3	4.69	0.54	3	5.04	0.90	6
Flight muscle mass	56.98	3.46	2	48.03	1.92	3	49.10	3.13	3	49.77	1.64	6
Gizzard mass	16.38	3.08	2	16.61	2.05	3	14.28	1.37	3	12.42	0.83	6
Heart mass	6.24	0.38	2	5.47	0.35	3	6.06	0.55	3	4.79	0.34	6
Intesting length	287.00	14.00	2	255.07	20.52	3	262.97	32.59	3	246.57	18.49	6
Intestine mass	30.20	3.20	2	35.57	2.80	3	26.89	3.21	3	25.67	2.92	6
Leg muscle mass	17.82	0.69	2	13.14	1.16	3	15.15	1.53	3	15.58	0.73	6

	Adult male			Adult female			Juvenile male			Juvenile female		
	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>
Liver mass	15.57	1.42	2	11.46	0.35	3	12.04	1.93	3	11.97	1.11	6
Mesentery fat mass	2.69	0.09	2	2.70	1.22	3	1.65	0.13	3	1.66	0.50	6
Omental fat mass	7.33	5.94	2	5.25	3.06	3	19.61	17.60	3	2.60	0.78	6
Skin mass	85.67	26.73	2	60.79	14.41	3	63.52	8.72	3	68.76	7.15	6
Visceral fat mass	0.30	0.07	2	0.22	0.05	3	0.28	0.13	3	0.22	0.06	6
<i>Late-winter</i>												
Corrected body mass	502.53	7.86	30	445.98	26.05	6	478.88	10.40	11	464.09	11.02	8
Esophagus-proventriculus length	23.38	0.66	22	19.25	1.94	4	22.44	1.54	6	22.93	0.53	7
Esophagus-proventriculus mass	4.95	0.23	26	4.22	0.90	4	4.81	0.59	7	4.73	0.28	7
Flight muscle mass	53.19	1.25	26	45.90	4.47	4	53.51	2.56	7	50.60	2.54	7
Gizzard mass	11.68	0.53	26	12.71	0.94	4	12.01	0.75	7	11.10	0.56	7
Heart mass	5.77	0.18	26	4.63	0.30	4	5.87	0.18	7	5.29	0.51	7
Intesting length	257.67	5.76	24	258.73	13.58	4	281.86	9.57	7	251.64	9.94	7
Intestine mass	24.12	1.41	25	24.25	3.52	4	22.45	0.99	7	24.52	1.88	7
Leg muscle mass	16.69	0.50	26	13.67	1.28	4	15.52	1.44	7	15.96	0.69	7
Liver mass	12.61	0.55	25	10.51	1.05	4	12.60	1.28	7	12.09	0.88	7
Mesentery fat mass	2.53	0.40	25	2.08	0.71	4	2.03	0.45	7	3.41	0.94	7
Omental fat mass	4.69	0.65	25	4.19	1.40	4	3.06	0.73	7	2.97	0.65	7
Skin mass	69.55	3.86	26	55.91	11.31	4	56.21	5.65	7	61.05	5.57	7
Visceral fat mass	0.20	0.03	23	0.18	0.08	4	0.24	0.09	7	0.23	0.03	7
<i>Spring</i>												
Corrected body mass	524.09	25.48	24	463.74	21.02	7	425.27	25.77	4	495.16	27.30	2
Esophagus-proventriculus length	22.69	1.58	13	20.25	1.28	4	22.05	2.55	2	-	-	-
Esophagus-proventriculus mass	6.37	0.36	16	3.54	0.21	4	4.92	1.88	2	-	-	-
Flight muscle mass	56.71	1.38	16	44.38	3.48	4	40.96	1.53	2	-	-	-
Gizzard mass	13.23	0.73	16	12.92	0.64	4	11.85	0.98	2	-	-	-
Heart mass	6.00	0.26	16	5.24	0.24	4	4.58	0.41	2	-	-	-
Intesting length	291.02	27.81	16	278.40	16.20	4	264.15	19.05	2	-	-	-
Intestine mass	30.07	1.59	16	30.69	5.60	4	24.80	2.52	2	-	-	-

	Adult male			Adult female			Juvenile male			Juvenile female		
	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>	\bar{x}	SE	<i>n</i>
Leg muscle mass	17.89	0.69	16	14.07	1.34	4	12.44	1.65	2	-	-	-
Liver mass	14.42	0.73	16	11.85	2.51	4	7.43	0.15	2	-	-	-
Mesentery fat mass	3.68	0.46	16	2.85	2.04	4	1.21	1.11	2	-	-	-
Omental fat mass	5.87	0.77	16	4.89	3.90	4	1.80	0.59	2	-	-	-
Skin mass	75.42	5.31	16	62.62	22.07	4	40.21	0.85	2	-	-	-
Visceral fat mass	0.37	0.15	16	0.22	0.09	4	0.09	0.06	2	-	-	-

Table A1.5. Mean (with SE) molt score for and numbers of scientifically collected waterfowl species at the Richland Creek Wildlife Management Area, Texas in fall (1 September – 15 November), early-winter (16 November – 31 December), late-winter (1 January – 28 February), and spring (1 March – 30 March) in 2004-2005 and 2005-2006.

Species	Season	Molt score	<i>n</i>
Blue-winged Teal	Fall	2.34 (0.65)	28
	Early-winter	2.41 (NA)	1
	Late-winter	2.21 (1.5)	2
	Spring	6.81 (0.99)	62
Green-winged Teal	Fall	5.12 (2.57)	9
	Early-winter	5.97 (1.31)	9
	Late-winter	1.09 (0.56)	8
	Spring	8.73 (3.74)	23
Northern Shoveler	Fall	14.52 (4.84)	4
	Early-winter	3 (1.16)	8
	Late-winter	14.64 (2.98)	34
	Spring	16.78 (4.48)	19