Supporting Information

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Table S1. Effects of tissue and sex on element composition of *Pieris rapae*

	Sex ($F_{1,27}$)	Tissue ($F_{2,27}$)	Tissue × sex ($F_{2,27}$)
Calcium	0.23	252.4*	7.74*
Potassium	0.03	15.3*	2.65†
Sodium	0.83	18.7*	4.33‡
Phosphorus	0.04	24.5*	3.12†

Shown are *F* values from a model that considered the effects of sex, tissue, and their interaction on the concentration of different elements. Butterflies from two different populations were used in the analyses, but there was no effect of population.
*$P < 0.01$.
†$P < 0.10$.
‡$P < 0.05$.

Table S2. Element composition of *P. rapae* reared on bok choy

Sex/tissue	Calcium	Potassium	Sodium	Phosphorus
Female				
Abdomen	1,294.2	15,502.3	2,624.8	14,082.3
Head	601.2	8,636.8	9,661.0	9,766.1
Thorax	337.0	11,586.7	1,940.4	11,108.1
Male				
Abdomen	1,548.9	18,288.4	5,351.8	16,004.4
Head	467.0	10,332.7	7,159.0	9,760.0
Thorax	278.6	7,799.0	3,844.1	8,753.0

Shown are mean concentrations (in milligrams per kilograms or parts per million) of different elements in head, thoracic, and abdominal tissue of male and female butterflies. This analysis includes 11 samples each for each tissue—each sample includes tissue from three to four pooled butterflies to increase inductively coupled plasma atomic emission spectroscopy (ICP-AES) reliability for such small samples ($n = 38$ total). Statistics are in Table S1.

Table S3. Element composition of monarchs reared on roadside- and prairie-collected milkweed

Sex/tissue	Calcium	Potassium	Sodium	Phosphorus
Female				
Abdomen	2,092	19,772	343	8,180
Head	*	15,395	*	9,208
Male				
Abdomen	2,018	20,904	422	8,870
Head	*	16,267	*	9,152

Shown are mean values (in parts per million) for abdomens and heads of 27 individual butterflies (each run separately). There was no significant effects of sex on element composition; the only effect of diet (roadside- or prairie-collected milkweed) was for sodium (in the text) and phosphorus (roadside-reared individuals had greater phosphorus in their heads).
*ICP-AES could not be reliably run for these elements for a sample as small as an individual head.

Table S4. Data on leaf tissue sodium levels for plants in the family Brassicaceae

Study	Treatment category	Genus	[Na] (ppm)
He and Cramer 1992 (1)	Control	*Brassica*	1,724
He and Cramer 1992 (1)	Salt addition	*Brassica*	24,361
He and Cramer 1992 (1)	Salt addition	*Brassica*	38,147
He and Cramer 1992 (1)	Salt addition	*Brassica*	49,177
Latef 2011 (2)	Control	*Brassica*	26,510
Latef 2011 (2)	Control	*Brassica*	29,300
Latef 2011 (2)	Salt addition	*Brassica*	31,250
Latef 2011 (2)	Salt addition	*Brassica*	43,300
Rameeh et al. 2004 (3)	Control	*Brassica*	6,260
Rameeh et al. 2004 (3)	Salt addition	*Brassica*	13,000
Rameeh et al. 2004 (3)	Salt addition	*Brassica*	20,100
Laboratory of E.C.S.-R.*	Control	*Brassica*	2,780
Laboratory of E.C.S.-R.*	Salt addition	*Brassica*	12,005
Laboratory of E.C.S.-R.†	WT	*Berteroa*	69
Laboratory of E.C.S.-R.†	WT	*Berteroa*	100
Laboratory of E.C.S.-R.†	WT	*Berteroa*	141
Laboratory of E.C.S.-R.†	WT	*Berteroa*	181
Watanabe et al. 2007 (4)	WT	*Brassica*	3,870
Watanabe et al. 2007 (4)	WT	*Brassica*	970
Watanabe et al. 2007 (4)	WT	*Brassica*	3,820
Watanabe et al. 2007 (4)	WT	*Brassica*	712
Watanabe et al. 2007 (4)	WT	*Brassica*	6,140
Watanabe et al. 2007 (4)	WT	*Brassica*	905
Watanabe et al. 2007 (4)	WT	*Brassica*	9,380
Watanabe et al. 2007 (4)	WT	*Brassica*	2,170
Watanabe et al. 2007 (4)	WT	*Brassica*	401
Watanabe et al. 2007 (4)	WT	*Raphanus*	7,720
Watanabe et al. 2007 (4)	WT	*Raphanus*	14,600
Watanabe et al. 2007 (4)	WT	*Raphanus*	8,320
Watanabe et al. 2007 (4)	WT	*Raphanus*	9,880
Watanabe et al. 2007 (4)	WT	*Raphanus*	9,930
Watanabe et al. 2007 (4)	WT	*Raphanus*	1,990
Watanabe et al. 2007 (4)	WT	*Raphanus*	2,800
Watanabe et al. 2007 (4)	WT	*Raphanus*	2,490
Watanabe et al. 2007 (4)	WT	*Raphanus*	2,880
Watanabe et al. 2007 (4)	WT	*Raphanus*	5,960

Each laboratory experiment included one to four sodium addition manipulations (salt addition), which are summarized here relative to the controls for each experiment. WT refers to samples that were collected in the field. ImageJ (National Institutes of Health) was used to estimate mean values reported in figures of studies that did not include appendices or tables.

*Data from a 2011 greenhouse manipulate of kale (*Brassica oleraceae*), where treatment individuals were watered with a mixture of NaCl and KCl for 3 wk and then leaf tissue was harvested 2 mo later.

†Samples were collected in 2012 in open areas (away from roadways) at Cedar Creek Ecosystem Science Reserve.

1. He, T Cramer GR (1992) Growth and mineral-nutrition of 6 rapid-cycling brassica species in response to seawater salinity. *Plant Soil* 139(2):285–294.
2. Latef AAHA (2011) Ameliorative effect of calcium chloride on growth, antioxidant enzymes, protein patterns and some metabolic activities of canola (brassica napus l.) under seawater stress. *J Plant Nutr* 34(9-11):1303–1320.
3. Rameeh V, Rezai A, Saeidi G (2004) Study of salinity tolerance in rapeseed. *Commun Soil Sci Plant Anal* 35(19-20):2849–2866.
4. Watanabe T, et al. (2007) Evolutionary control of leaf element composition in plants. *New Phytol* 174(3):516–523.