Peter A. Abrams and Michael H. Cortez. 2015. The many potential indirect interactions between predators that share competing prey. Ecological Monographs VOL: pp-pp.

Appendix A Overview of appendices and notation

The following appendices present all of our analytical results. Throughout we present results for the general case where $b_{ji} \neq 1$. While numerical differences arise between the $b_{ji} = 1$ and $b_{ji} \neq 1$ cases, most of the qualitative results presented in the main text for the $b_{ji} = 1$ case hold for the $b_{ji} \neq 1$ case. Any differences that do arise between the two cases are discussed in the appropriate sections.

Our notation is the following. We use the subscripts i and h for the prey species (e.g., R_i) and the subscripts j and k for the predator species (e.g, N_j). We frequently refer to the quantities $\Delta = c_{12}c_{21} - c_{11}c_{22}$ and $\bar{\Delta} = b_{12}c_{12}b_{21}c_{21} - b_{11}c_{11}b_{22}c_{22}$. The value of Δ has different implications for traditional and defense-based partitioning. As noted in the main text, for the defense-based partitioning cases the sign of Δ determines which predator's attack rates are more sensitive to prey defense. $\Delta > 0$ means N_1 is more sensitive to prey defense and $\Delta < 0$ means N_2 is more sensitive to prey defense. Under defense-based partitioning, the sign of $\bar{\Delta}$ has a similar interpretation for the composition of the predator attack rates and prey conversion rates. It is always the case that under traditional resource partitioning $\Delta < 0$ and if the two predators coexist, $\bar{\Delta} < 0$.

Throughout, we only focus on the case where Δ and $\bar{\Delta}$ have the same sign because stable or cyclic coexistence of all four species is not possible when Δ and $\bar{\Delta}$ have opposite signs; see appendix B.3. Biologically, we expect Δ and $\bar{\Delta}$ to have the same sign in a number of cases including when (i) the conversion rate is constant across species, $b_{ji} = c$ for all i, j or (ii) the relative conversion rates are determined by characteristics of the prey species, $b_{11}/b_{12} = b_{21}/b_{22}$.