1145-VS-2767 **David Chang Luo*** (`david.luo@emory.edu`), MSC 161201 Emory University Main, 1762 Clifton Road, Atlanta, GA 30322. *Generalizations of the Abundancy Index and Outlaws.*

The *abundancy index* of a positive integer n is the ratio of the sum of its divisors to itself; the abundancy index of n is two if and only if n is perfect. An *abundancy outlaw* is a rational number greater than one that fails to be the abundancy index of any positive integer. We generalize previous results about abundancy outlaws by defining a two variable abundancy index function as $I(x,n)\colon \mathbb{Z}^+ \times \mathbb{Z}^+ \to \mathbb{Q}$ where $I(x,n) = \frac{\sum_{d|n} d^x}{n^x}$. By exploring upper bound properties of the abundancy index, we construct sufficient conditions for rationals greater than one that fail to be in the image of $I(x,n)$. Finally, we apply these results to observe properties of *perfect* numbers under the two variable abundancy index. (Received September 25, 2018)