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Title: A Relation between Mass and Radius for 59 Exoplanets with  $R < 4R \oplus$ 

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Abstract: We study the masses and radii of the 59 known exoplanets that have radii less than 4R⊕. We find a

linear relation of the form  $M \approx 3R$ . The RMS of planet masses is  $5M \oplus$ , and our best fit has reduced  $\chi 2 = 4.3$ , indicating a large diversity in planet compositions below  $4R \oplus$ . Wu & Lithwick (2013), who also

find  $M \approx 3R$ , note that the linear scaling is consistent with a constant escape velocity.