Magnetic susceptibility.

The inverse susceptibility (1/\(\chi\)) data gathered at low applied field was fit using the modified Curie-Weiss law (1/(\(\chi-\chi_0\)) = (T-\(\theta_{CW}\))/\(C\)) with a temperature independent susceptibility term \(\chi_0\). As shown in Figure S1, the modified Curie-Weiss law reasonably fits the data. The following fitting parameters were obtained from the slope and the abscissas: effective moment equal to 0.78 \(\mu_B\), \(\theta_{CW} = -8.8\) K and \(\chi_0 = 1.29 \times 10^{-3}\) emu/mol/Oe.

Figure S1. The modified Curie-Weiss fitting results of \(\text{Cu}_3\text{Ru}_6\text{Sb}_8\) for \(H=500\) Oe
Resistivity.

The temperature dependence of resistivity measured on a sintered polycrystalline pellet of Cu$_3$Ru$_6$Sb$_8$ shows a metallic behavior (Figure S2). The resistivity monotonically decreases on lowering the temperature until about 19 K. At lower temperatures, the resistivity is almost temperature-independent—a typical behavior for a metal. A resistivity of $2.35 \times 10^{-6}$ $\Omega$.m was estimated for Cu$_3$Ru$_6$Sb$_8$ at 300 K, also indicating a typical metallic-like conductivity. The residual resistivity ratio ($\rho_{300K}/\rho_{5K}$) of 3.2 is suggestive of grain-boundary contribution to the conductivity of the sintered polycrystalline pellet.

Figure S2. The temperature dependence of resistivity of polycrystalline Cu$_3$Ru$_6$Sb$_8$. 
Figure S3. Experimental and calculated powder X-ray diffraction pattern of Cu₃Ru₆Sb₈.