It has been observed that zirconium phosphido complexes of the form $(N_3N)ZrPHR$ (N_3N = $N(CH_2CH_2SiMe_3)_3^{3-}$; R = Ph, Cy) undergo insertion reactions with a variety of small polar organic substrates. Reaction of $(N_3N)ZrPHPh$ with isocyanides result in the formation of the 1,1-insertion product $(N_3N)Zr[C(PHPh)=NR']$ (R' = Ph, CH_2Ph, Cy, ^{t}Bu). These molecules are thermally unstable and rearrange to a phosphaalkene-containing product of the form $(N_3N)Zr[N(R)C(H)=PPh]$. This reaction appears to be general for alkyl and aryl isocyanides. The reactivity of these metal-mediated phosphaalkenes has been investigated and liberation of the phosphaalkene has been accomplished by reactions with electrophiles. The reactivity of these phosphaalkenes will be discussed.