For a polyhedral domain $\Sigma \subset \mathbb{R}^n$, and a Hilbert metric nonexpansive map $T : \Sigma \to \Sigma$ which does not have a fixed point in $\Sigma$, we prove that the omega limit set $\omega(x; T)$ of any point $x \in \Sigma$ is contained in a convex subset of the boundary $\partial \Sigma$. We also identify a class of order-preserving homogeneous of degree one maps on the interior of the standard cone $\mathbb{R}_+^n$ which demonstrate that there are Hilbert metric nonexpansive maps on an open simplex with omega limit sets that can contain any convex subset of the boundary. (Received September 25, 2006)