**Table S1.** Intensity Analysis (Aldwaik & Pontius 2012) notations and equations for interval and category level intensities

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| --- | --- | --- |
| $U=\frac{\sum\_{t=1}^{T-1}\frac{\left\{\sum\_{j=1}^{J}\left[\left(\sum\_{i=1}^{J}C\_{tij}\right)-C\_{tij}\right]\right\}}{\left[\sum\_{j=1}^{J}\left(\sum\_{i=1}^{J}C\_{tij}\right)\right]}}{\left(Y\_{T}-Y\_{1}\right)}100\%$  | = $\frac{area of change during all {intervals}/{area} of study region}{duration of all intervals} $x 100% | (1) |
| $S\_{t}=\frac{\left\{\sum\_{j=1}^{J}\left[\left(\sum\_{i=1}^{J}C\_{tij}\right)-Ctij\_{ }\right]\right\}/\left[\sum\_{j=1}^{J}\left(\sum\_{i=1}^{J}C\_{tij}\right)\right]}{Y\_{t+1}-Y\_{t}}100\%$  | = $\frac{area of change during interval [Yt, Yt+1]/area of study area}{duration of interval [Yt, Yt+1]}$ x 100% | (2) |
| $G\_{tj}=\frac{\frac{\left[\left(\sum\_{i=1}^{J}C\_{tij}\right)-C\_{tjj}\right]}{\left(Y\_{t+1}-Y\_{t}\right)}}{\sum\_{i=1}^{J}C\_{tij}}$ 100%  | = $\frac{area of gross gain of category j during [Yt,Yt+1]/duration of [Yt,Yt+1]}{area of category j at time Yt+1}$ x 100% | (3) |
| $L\_{ti}=\frac{\left[\left(\sum\_{j=1}^{J}C\_{tij}\right)-C\_{tii}\right]/\left(Y\_{t+1}-Y\_{t}\right)}{\sum\_{j=1}^{J}C\_{tij}}$100%  | = $\frac{area of loss category i during [Yt, Yt+1]/duration of [Yt,Yt+1]}{area of category i at time Yt+1}x 100\%$ | (4) |

Where *J* = number of categories; *i* = index for a category at an initial time; *j* = index for a category at a subsequent time; *T* = number of time points; *t* = index for a time point, which ranges from *1* to *T-1*; *Yt* = year at time point *t*; *Cti*j = number of pixels that transition from category *i* at time Yt =1; *St* = annual intensity of change for time interval [*Yt, Yt+1*]; *U* = value of uniform line for time intensity analysis of [*Yt, Yt+1*]; *Gtj* = annual intensity of gross gain for category *j* for time interval [*Yt, Yt+1*]; *Lti* = annual intensity of gross loss for category *i* for time interval [*Yt, Yt+1*]. Note: The notation and equations follow Aldwaik and Pontius (2012), and are further described in Huang *et al.* (2012). Software to facilitate the Intensity Analysis calculations is freely available from <https://sites.google.com/site/intensityanalysis> (Aldwaik & Pontius 2012).