On the pullback equation for differential forms

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An important question in geometry and analysis is to know when two $k-$forms f and g are equivalent. The problem is therefore to find a map φ such that

$$\varphi^*(g) = f.$$

We will mostly discuss the symplectic case $k = 2$ and the case of volume forms $k = n$. We will give some results on the more difficult case where $3 \leq k \leq n-2$, the case $k = n-1$ will also be considered.

[1] Bandyopadhyay S. and Dacorogna B., On the pullback equation $\varphi^*(g) = f$, *Ann. Inst. Henri Poincaré, Analyse Non Linéaire*, **26** (2009), 1717-1741.

[2] Bandyopadhyay S., Dacorogna B. and Kneuss O., The pullback equation for degenerate forms, *Disc. Cont. Dyn. Syst. Series A*, **27** (2010), 657-691.

[3] Dacorogna B. and Kneuss O., Divisibility in Grassmann algebra, to appear in *Linear and Multilinear Algebra*.

[4] Csato G., Dacorogna B. and Kneuss O., *The pullback equation for differential forms*, to appear with Birkhaüser.