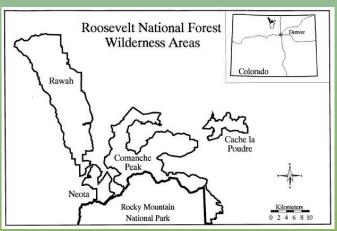


1. Contexto







2. Clases a predecir

Pino Ponderosa



Álamo/Sauce

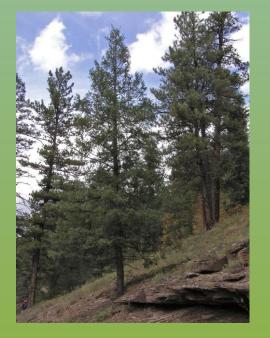


Conífera/Abeto

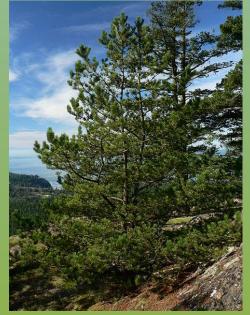




Álamo temblón (Aspen)



Abeto de Douglas

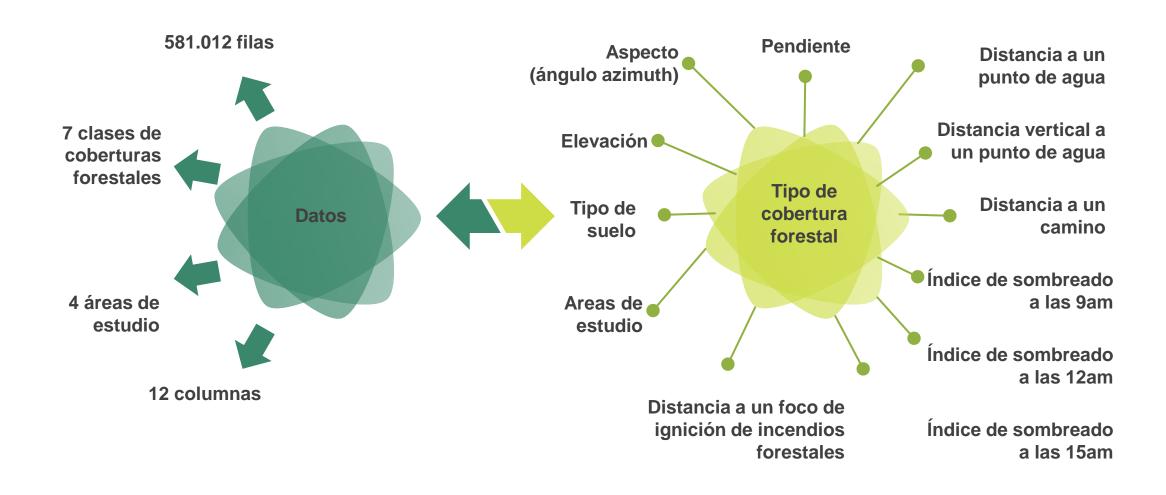


Pino Lodgepole



Vegetación atrofiada/deformada (Krummholz)

3. Datos

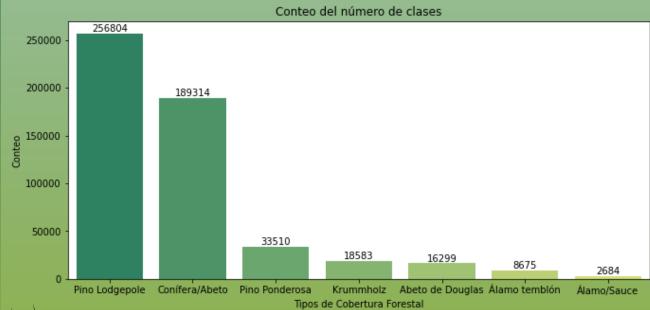


4. EDA

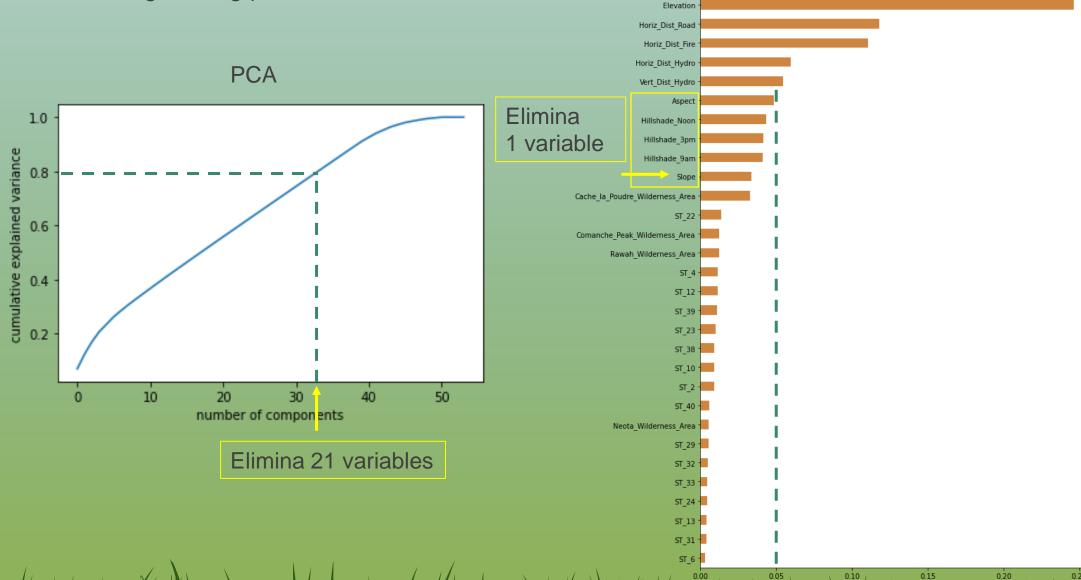


Elevation - 1 0.014 -0.25 0.32 0.11 0.37 0.11 0.21 0.061 0.15 Aspect - 0.014 1 0.081 0.0072 0.062 0.02 -0.58 0.33 0.65 -0.11 Slope - -0.25 0.081 1 -0.023 0.3 -0.22 -0.34 -0.53 -0.17 -0.19 Horiz_Dist_Hydro - 0.32 0.0072 -0.023 1 0.68 0.078 -0.012 0.052 0.044 0.054 Vert_Dist_Hydro - 0.11 0.062 0.3 0.68 1 -0.077 -0.15 -0.11 0.018 -0.087 Horiz_Dist_Road - 0.37 0.02 -0.22 0.078 -0.077 1 0.046 0.19 0.097 0.34 Hillshade_9am - 0.11 -0.58 -0.34 -0.012 -0.15 0.046 1 0.018 -0.78 0.14 Hillshade_Noon - 0.21 0.33 -0.53 0.	
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Eleva foriz_Dist_H Hillshade_P Hillshade_P Hillshade_P	

Tipo de cobertura	Código numérico	Conteo	
Pino Lodgepole	2	256.804	
Conífera/Abeto	1	189.314	
Pino Ponderosa	3	33.510	
Krummholz	7	18.583	
Abeto de Douglas	6	16.6299	
Álamo temblón	5	8.675	
Álamo/Sauce	4	2.684	



4. Feature engineering | Feature selection



Random Forest Selection

Top 30 important features

5. Clasificación | Modelos empleados

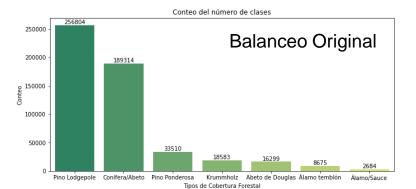


Clase	Cobertura Forestal	Precision	Recall	F1-score
1	Conífera/Abeto	0.96	0.94	0.95
2	Pino Lodgepole	0.95	0.97	0.96
3	Pino Ponderosa	0.95	0.96	0.95
4	Álamo/Sauce	0.90	0.89	0.89
5	Álamo temblón	0.94	0.75	0.83
6	Abeto de Douglas	0.94	0.90	0.92
7	Krummholz	0.97	0.95	0.96

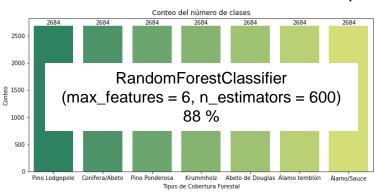
5. Clasificación | Modelos empleados Random **Forest** Classifier 95 %

¿Se puede mejorar aún?

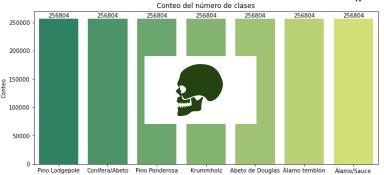
GridSearchCV Parámetros Balanceo del target: RandomUnderSampler SMOTE()



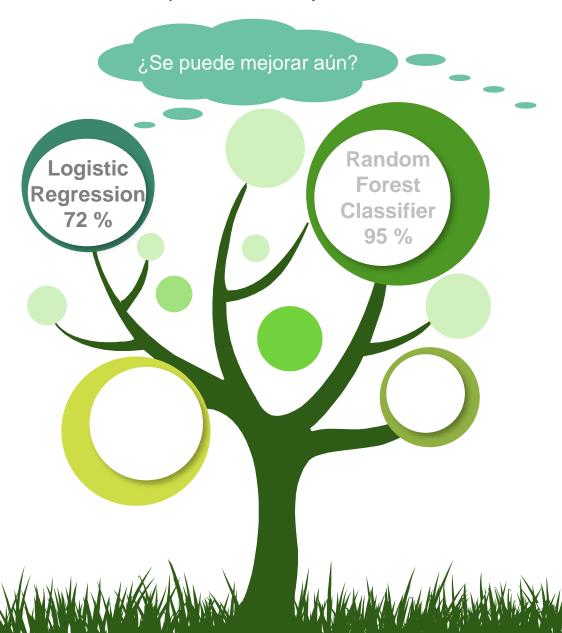
RandomUnderSampler



SMOTE()



5. Clasificación | Modelos empleados

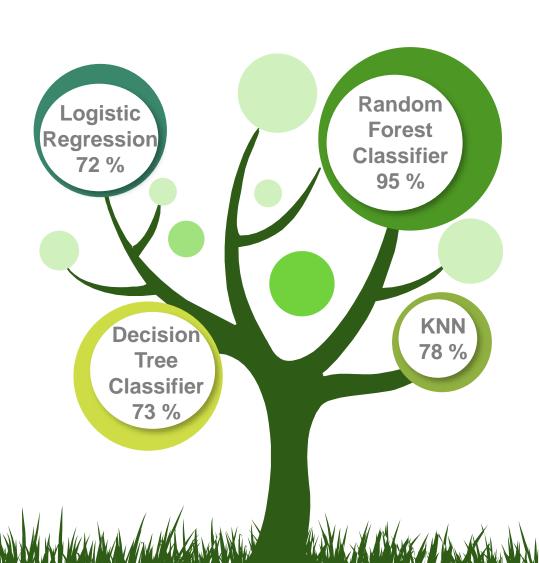


Reducción de variables (PCA) 71 %

Reducción de variables (Random Forest Selection) 72 %

Predicciones no mejoran ni emporan Mismo resultado con la mitad de recursos Menos gasto computacional

5. Clasificación | Modelos empleados





Referencias:

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Kumar, A., & Sinha, N. (2020). Classification of forest cover type using random forests algorithm. In *Advances in data and information sciences* (pp. 395-402). Springer, Singapore.

Sjöqvist, H., Längkvist, M., & Javed, F. (2020). An analysis of fast learning methods for classifying forest cover types. *Applied Artificial Intelligence*, *34*(10), 691-709.

Provided by: Remote Sensing and GIS Program, Department of Forest Sciences. College of Natural Resources. Colorado State University. Fort Collins, CO 80523