Ethnobotanical uses in the Ancona district (Marche region, Central Italy)

Lara Lucchetti, Silvia Zitti* and Fabio Taffetani

Abstract

Background: The study is a survey of the traditional uses of plants in the Ancona district, in the Marche region, Central Italy.

Methods: The information derives from ethnobotanical investigations conducted with an open questionnaire among the rural population in three areas of the Ancona district that are representative of the socio-economic and environmental assets of the entire district: the Mount Conero area on the Adriatic coast; the municipality of Osimo, as an inland hilly area; and the ‘Gola della Rossa–Frasassi’ area, in the Apennines.

Results: A total of 120 informants cited 195 species. The ethnobotanical data concern medicinal (122 species), food (119), veterinary (53), superstitious/religious (61), cosmetic (30), domestic (27), dyeing (17), recreational (17), repellent (15), craft (10), and miscellaneous (29) uses, along with inclusion in local sayings and proverbs (25). The species with the greatest number of categories of use here was Sambucus nigra L. Among the other species with the greatest numbers of categories of use, there were Matricaria chamomilla L., Salvia officinalis L., Urtica dioica L., Papaver roheas L., and Rosa canina L. For each use, comparisons with national and regional literature were made.

Conclusions: Some uses are commonly known across the three areas; others are sectoral and are new for the Marche region. The survey increases our present-day knowledge of the traditional local uses of plants in the Marche region, in terms of medicinal and food uses, and of ethnobotanical aspects as a whole, which will allow many of these uses to be preserved in the future.

Keywords: Ethnobotany, Traditional local knowledge, Wild plant uses, Marche region, Italy

Background

The use of wild plants in Italian rural communities was a common practice, especially in the traditional sharecropping rural society of Central Italy that was largely based on self-sufficiency through self-consumption [1]. In this kind of society, in addition to the most common kind of uses as medicines and food, a lot of plants were used for many different aspects of daily life, such as craft work and home tools. However, the rural culture that included the knowledge of the use of spontaneous plants began to fragment from the second half of the twentieth century due to the progressive depletion of the population of the countryside, and to urbanisation and widespread industrialisation [2–4]. The use of sharecropping contracts ended in 1964 also in the Marche region, and this led to changes in the production structure, with the spread of large-scale agriculture that was disconnected from the territory itself. This contributed to the loss of identity of the rural society, and of its knowledge and traditions. Research such as the present study can contribute to the conservation of the knowledge related to traditional practices, which are now fragmented and remain almost exclusively with older people [5].

The present study collected and analysed the knowledge of ethnobotanical uses that are still widespread in the Ancona district, and considers not only medicinal and food uses, but also veterinary, superstitious/religious, cosmetic, domestic, dyeing, recreational and repellent uses, and craft uses for wood, and cases where plants are mentioned in sayings and proverbs. Three areas among the rural populations of the Ancona district that are representative of the socio-economic and environmental assets of the entire district were chosen for...
this study: the Mount Conero area on the Adriatic coast; the municipality of Osimo, as an inland hilly area; and the Gola della Rossa–Frasassi area, in the Apennines.

The aims were thus to:

- Collect the traditional knowledge about wild plant uses that still remains in the population of central Marche;
- Compare data collected with the literature on regional and national ethnobotanical surveys;
- Identify new uses according to the Ancona district.

Methods
Survey areas
These ethnobotanical studies were conducted in three different areas in the Ancona district (Marche region, Central Italy). The Ancona district is one of the five provinces of the Marche region, and it includes a small area of the Apennines (34%), and wider hilly inland areas with flat stretches and an extended coastline, which altogether account for the remaining two thirds of the territory [6, 7]. The three areas of this study were thus designed to fall into each of these three sectors: the Mount Conero area on the Adriatic coast; the inner hilly area of the municipality of Osimo; and the Apennine area of Gola della Rossa–Frasassi (Fig. 1).

The area of Conero Park
The Mount Conero area extends along a coastal strip in a central position of the Marche region, and it includes part of the municipalities of Ancona, Camerano, Sirolo, and Numana. On the basis of the bioclimatic indices of Rivas-Martinez et al. [8], the territory of Mount Conero belongs to the Mediterranean macrobioclimate, with a pluvi-seasonal oceanic climate, upper meso-Mediterranean thermotype, and low subhumid ombrotype [9]. The territory is mainly hilly, and Mount Conero is the highest peak (572 m a.s.l.). Thirteen percent of the territory is urbanised [10], and 50% is dedicated to agriculture [11]. The economic enterprises are mostly tourism and manufacturing [12].

This area includes the Mount Conero Regional Natural Park (Parco Naturale Regionale del Conero), which covers a total area of 5914 ha, and is characterised by different habitats of high floristic and geological value. These include three Sites of Community Importance (SCI) and one Zone of Special Protection (ZSP). The prevailing plant landscape in the central core of Mount Conero is constituted by woods of evergreen area.
sclerophylls that alternate with reforestation with conifers and deciduous forests. Along the cliffs above the sea, there is rupiculous vegetation and Mediterranean scrubland. The more internal hilly areas mainly comprise agricultural landscapes that are mixed with oak woods (Quercus pubescens Willd.), hygrophyllous vegetation along the water courses, and broom shrubs (Spartium junceum L.) that colonise the abandoned fields. The flora includes 1169 entities [9], some of which here reach the northern limits of their distribution along the western Adriatic coast, including Ampelodesmos mauritanicus (Poir.) T. Durand and Schinz, Coronilla valentina L. and Euphorbia dendroides L. In this area, the ethnobotanical surveys were conducted in the municipalities of Camerano, Sirolo (a hamlet of San Lorenzo, Coppo) and Numana, and in the hamlets of Poggio and Massignano in the municipality of Ancona.

The area of the municipality of Osimo
The municipality of Osimo extends over 10,600 ha, and the territory is mainly hilly (highest peak, Monte della Crescia, 361 m a.s.l.), and it alternates with valleys near the Musone River. The macrobioclimate is temperate with a sub-Mediterranean variant, lower mesotemperate thermotype, and lower humid ombrotypes [8]. This territory is predominantly agricultural, with marginal environments that are characterised by natural and semi-natural vegetation, with some residual woods that were the subject of recent studies [13, 14], and some riparian areas. Osimo has a population of 34,918 inhabitants (ISTAT 2017) and is classified as ‘level 2’ in terms of its degree of urbanisation (ISTAT 1 January 2018) [15]. The local enterprises are mainly based on manufacturing [12], and cultivation covers 7310 ha. In this area, the ethnobotanical surveys were conducted in the hamlets of Campocavallo, Passatempo, San Sabino, Padi glione, San Paterniano, and San Biagio.

The area of Gola della Rossa–Frasassi
The third area is located in the mountain sector of the province of Ancona, and it falls partly within the Regional Natural Park of the Gola della Rossa–Frasassi. The territory is mainly mountainous (highest peak, 1093 m a.s.l.) and consists of the two limestone gorges ‘Gola di Frasassi’ and ‘Gola della Rossa,’ and includes also Scappuccia Valley and Valdicastro Valley. The bioclimatic temperate is of the sub-Mediterranean variant, upper mesotemperate thermotype, and lower humid ombrotypes [8]. The vegetation of the mountain areas is mainly mixed deciduous forests that are dominated by hornbeam and flowering ash, and at higher altitudes, beech and grasslands with shrubs. The calcareous gorges with southern exposure host Mediterranean sclerophyllous woods and rupiculous vegetation, with the presence of endemic species, including Moehringia papulosa Bertol., which is endemic to the Marche gorges [7]. In the lower areas of the valleys, the landscape is agricultural, with cultivated fields alternating with small residual woody nuclei, with hedges, shrubland, and margin vegetation. The population is mainly concentrated in the urban centres of the park, with the production activities located at the bottoms of the valleys, as relatively fragmented agricultural activities. In the area of Gola della Rossa–Frasassi, the ethnobotanical surveys were conducted in the hamlets of Castellaro, Trivio, Forchiusa, Serralta, Sasso, Montirone, and Sant’Elena, and in the municipality of Serra San Quirico.

Ethnobotanical research methods
The ethnobotanical surveys were conducted in the small towns and rural villages of the three areas in the Ancona district between 2008 and 2011, and involved a total of 120 people, defined as the ‘informants.’ These informants were not chosen completely at random within the territories, but were chosen through selection of individuals who according to their ages (more than 50 years of age) or cultural or social backgrounds would have knowledge of the plant uses, either directly or as passed down by their families. This was achieved by means of word of mouth from some known contacts to identify relevant informants, using the ‘snow-ball sampling’ method [16].

The informants were initially introduced to the aims and methods of the interviews, and then asked for their consent to proceed. Before proceeding with the interviews, it was ascertained that the informants were native to the particular survey area, in terms of being born and raised there. During the interviews, the informants were asked open questions, such as “Which plants were used, and for what use? How were these plants used, who collected them, and where and when? Were there sayings or proverbs related to any specific plants?” Data were also collected on the informants, in an anonymous form, as year of birth, initials of name and surname, gender, level of education, and work activity. Italian was used as the language of the interviews. Table 1 includes the local names of the plants that were collected, where sometimes the local names were different across the three study areas.

During the interviews, observations were often made in the field to identify the species used; alternatively, fresh samples of plants or their pictures were shown to the informants. Voucher specimens are stored at the ‘Herbarium Anconitanum’ (ANC) of the Department of Agricultural, Food and Environmental Sciences of the Polytechnic University of Marche (UNIVPM). Identification of the species was carried out on the basis of ‘Flora d’Italia’ [17], the updated nomenclature was based on online databases [18, 19] and the classification in
| Scientific name                        | Family               | Local names                  | Parts used          | Uses                                                                 | References for similar uses |
|---------------------------------------|----------------------|------------------------------|---------------------|----------------------------------------------------------------------|------------------------------|
| *Acer campestre* L.                   | Sapindaceae          |                              | Wood, Whole plant   | Craft: handles, tools [37]                                           |                              |
| *Achillea collina* (Becker ex Rchb.f.) Heimerl | Asteraceae           | *Millefoie, stagnasangue* (g) | Flower, Leaves, Aerial part | Food: *fried flower in salted batter*                                |                              |
| *Adonis annua* L. ssp. *cupaniana* (Guss.) C. Steinberg | Ranunculaceae        |                              | Leaves, flowers     | Med: infusion as cicatrizer [27]                                     |                              |
| *Aesculus hippocastanum* L.           | Sapindaceae          | *Castagna selvatica*         | Fruit               | Sup/rel: under the pillow against colds [37]                        |                              |
| *Agrimonia eupatoria* L.              | Rosaceae             | *Erba de andata* (o)         | Leaves              | Med: *leaf infusion as digestive*                                    |                              |
| *Allanthes altissima* (Mill.) Swingle | Simaroubaceae        |                              | Leaves              | Med: leaf infusion as anti-diarrhoea                                 | Similar use of bark in [27]   |
|                                       |                      |                              |                     | Vet: *for feeding silkworms*                                        |                              |
| *Alliaria petiolata* (M.Bieb.) Cavara and Grande | Brassicaceae         | *Agliaria* (o), *erba agлина* (g) | Leaves, flowers     | Med: infusion to treat cough [27]                                    |                              |
|                                       |                      |                              | Leaves              | Food: to flavour salads [30, 34], roasted meat; piadina filling     |                              |
|                                       |                      |                              |                     | Vet: *in dairy cow feed*                                             |                              |
| *Allium cepa* L.                      | Amaryllidaceae       |                              | Bulb                | Med: fresh bulb cut in half rubbed on the skin as disinfectant to heal insects bites [23, 26] |                              |
|                                       |                      |                              |                     | Sup/rel: bulbs cut in half with spoonful of coarse salt on top to predict the weather [23] |                              |
| *Allium neapolitanum* Cirillo         | Amaryllidaceae       | *Cipollotto del diavolo* (o) | Bulb                | Med: raw bulbs eaten as vermifuge                                    | Similar use of *Allium sativum* L. in [4, 21, 37] |
|                                       |                      |                              |                     | Food: raw in salads [34]                                             |                              |
|                                       |                      |                              |                     | Vet: *bulbs macerated in wine to heal rabies in dogs*                |                              |
|                                       |                      |                              |                     | Sup/rel: bulbs in necklaces to protect against devil’s eye           | Similar use of *Allium sativum* L. in [21, 37] |
|                                       |                      |                              |                     | Rep: *bulbs macerated in water against aphids*                      |                              |
| *Alosysia citrioloda* Palau.          | Verbenaceae          | *Cedina* (g)                 | Leaves              | Food: sautéed flowers to season pasta                               |                              |
|                                       |                      |                              |                     | Dom: *flowers used in floral decorations*                            |                              |
|                                       |                      |                              |                     | Med: one raw bulb or four bulbs boiled in milk and eaten to heal intestinal warms [23, 33]; one bulb under the pillow to heal intestinal warms in children [4, 23]; bulb poultice with olive oil or beeswax to heal calluses [23, 26]; rubbed fresh bulb to heal insects bites [21, 26] |                              |
|                                       |                      |                              |                     | Prov: ‘se voi l’aiola grossa, a Natale lo devi ave posto’            |                              |
|                                       |                      |                              |                     | Cosm: leaves in bath water to perfume the skin [23]                 |                              |
| Scientific name                  | Family               | Local names       | Parts used      | Uses                                         | References for similar uses                                      |
|---------------------------------|----------------------|-------------------|-----------------|----------------------------------------------|------------------------------------------------------------------|
| *Amaranthus retroflexus* L.     | Amaranthaceae        | Flowers           | Dom: dry flowers in floral decorations | Dom: dry flowers in floral decorations |                                                                  |
| *Ampelodesmos mauritanicus* (Poir.) T.Durand and Schinz | Poaceae              | Saracco (c)       | Leaves          | Mx: leaves used to make string and rope [22]  |                                                                  |
| *Anagallis arvensis* L.         | Primulaceae          | Centocchio (a)    | Aerial part     | Med: decoction of aerial part to heal cough [27] | Vet: aerial parts with leaves of *Urtica dioica* L. and dry bread for feeding laying hens [37] |
| *Apium graveolens* L.          | Apiaceae             | Acquaiola (a)     | Aerial part     | Med: infusion of aerial part as digestive and diuretic [30]; leaf pack as emollient* | Cosm: leaf pack to treat dry skin *Similar use against bruises [37] or to treat chilblains [23] |
| *Arbutus unedo* L.             | Ericaceae            | Fruits            | Food: fruit eaten raw or preserved in alcohol to make a liquor [4, 21, 27] |   |                                                                  |
| *Arctium minus* (Hill) Bernh.   | Asteraceae           | Leaves            | Med: leaves in pack on feet as diaphoretic to heal bronchial diseases (correlated to fever) [36] | Cosm: leaf juice rubbed on scalp to heal dandruff; leaf decoction to heal acne | Similar use to heal hair loss [25] |
| *Artemisia vulgaris* L.         | Asteraceae           | Erba di S. Giovanni (g) | Leaves          | Med: leaf infusion to regularise menstruation [37] | Food: some raw leaves in salads similar uses in soups [37] and for *Artemisia absinthium* L. [30] |
| *Arum italicum* Mill.          | Araceae              | Erba biscia (a)   | Leaves          | Med: leaves applied as antirheumatic [37] | Vet: leaf decoction as diuretic [37] Roots as feeding for pigs [21] |
| *Arundo donax* L.              | Poaceae              | Canna (a, c, g)   | Whole plant     | Med: leaf infusion as diuretic [37] | Twigs: *Arundo donax* L. and *Olea europaea* L. twigs to make a cross to protect fields [23] |
|                                 |                      |                   | Sup/rel: fresh plant eaten as aphrodisiac; against devil's eye [30] | | Craft: to make a support for knitting |
| Scientific name       | Family        | Local names                  | Parts used | Uses                                                                 | References for similar uses |
|-----------------------|---------------|------------------------------|------------|----------------------------------------------------------------------|-----------------------------|
| **Asparagus acutifolius L.** | Asparagaceae  | Sparaghi (c), asparagina (c, g) | Shoots     | Med: eat boiled shoots as diuretic [4, 30]; shoots decoction together with *Elymus repens* (L.) Gould. as diuretic. Food: boiled shoots as side dish [30], seasoning for risotto and omelettes [21, 30], [4, 41, 44, 48]. Dye: **boiling water used to dye fishing nets green**. | pins, to make ‘raganello’ [37]. Recr: to make whistles [37]. Mix: to support plants in the orchards, to make baskets [37]. |
| **Avena sativa L.**    | Poaceae       | Venella (g)                  | Seeds      | Med: infusion and wraps to heal rheumatic pain [37]. Aerial part: Dom: dry plants used in floral decorations [36]. Vet: dry plants to feed rabbits, horses, cattle [36]. Ears: Recr: ears pulled by girls and boys, and counted to forecast number of children or husbands [37]. |                                                                       |
| **Barbarea vulgaris R. Br.** | Brassicaceae | Crescione (g)                | Leaves     | Food: **raw leaves in salads**. In soups [30, 44]. |                                                                       |
| **Bellis perennis L.** | Asteraceae    | Pasquetta (o), margherita (g) | Leaves     | Med: raw leaves eaten as depurative [4]; wrap of raw leaves to treat sores [37]. Food: **raw leaves in salads** [4, 39, 42]; in soups [39, 41]. Flowers: Sup/rel: infiorata [4]. Recr: flowers used to make necklaces and for ‘m’ama non m’ama’ game [37]. |                                                                       |
| **Borago officinalis L.** | Boraginaceae | Boragginie; borragine (c, o, g), borragia (g) | Leaves | Med: leaf infusion to heal cough [25, 31] as depurative [25]; leaf wraps to heal sores and reddened skin*. Food: leaves raw in salads [27], boiled as side dish [41, 44], seasoning for pasta and risotto [4, 44], filling for fresh pasta or pies [4, 21, 42], soups [4, 21, 27, 41, 45], omelettes [27, 41, 42], fried [4, 21, 44], fried with mozzarella and anchovy rolls. Cosm: leaves in bath water to clean skin. Emollient properties in [30, 43]. *Emollient in [30]. | | *Emollient in [30]. |
| **Brassica oleracea L.** | Brassicaceae  | Cavolo, verza (g)            | Leaves     | Med: fresh leaves used to make wraps to heal rheumatic pain [4, 26, 31]. Vet: fresh leaves used to make wraps to heal bruises [37]. |                                                                       |
| **Calendula officinalis L.** | Asteraceae    | Calenda (o, g)               | Flowers    | Med: macerated flowers in the wine used to heal chilblains; ointment with olive oil and flowers used as emollient [26]; ointment with flowers used as cicatrizer. The use is similar to the lenitive one and to heal rheumatic pains in [26, 33, 43]. |                                                                       |
Table 1 The species of ethnobotanical interest in the Ancona district (Continued)

| Scientific name | Family          | Local names                  | Parts used   | Uses                                                                 | References for similar uses |
|-----------------|-----------------|------------------------------|--------------|----------------------------------------------------------------------|------------------------------|
| Colepina irregularis (Asso) Thell. | Brassicaceae    | Erba del tacchi (o)          | Leaves       | Food: flowers for seasoning risotto                                  | In soups [39]                |
|                 |                 |                              | Whole plant  | Sup/rel: flowers used in ‘infiorata’ [37]                           |                              |
|                 |                 |                              | Flowers      | Mix: flowers used to decorate churches for marriages                  |                              |
| Calystegia sepium (L.) R.Br. | Convolvulaceae  | Campanella (o)               | Leaves       | Food: leaves boiled to make omelettes                                |                              |
|                 |                 |                              | Aerial part, stems | Mix: to make string, cord [23]                                    |                              |
| Campanula rapunculus L. | Campanulaceae  | Lattughella (g)              | Leaves       | Vet: leaves for feeding the cattle                                   |                              |
|                 |                 |                              | Food: raw leaves in salads [4, 21, 24, 39]                          |                              |
| Cannabis sativa L. | Cannabaceae     | Canapa (c)                   | Aerial part, stems | Food: flowers fried in sweet batter [37]                           |                              |
| Capsella bursa pastoris (L.) Medik. | Brassicaceae  | Cimino (o)                   | Leaves       | Food: raw leaves in salads or boiled in vegetable mixtures as side dish [4, 39] |
|                 |                 |                              | Whole plant  | Sup/rel: brings good luck                                             |                              |
| Carex pendula Huds. | Cyperaceae      | Cannucciaia                  | Stems        | Mix: stems used to make seats for straw chairs [36]                  |                              |
| Castanea sativa Mill. | Fagaceae       | Castagna (g)                 | Fruits       | Food: fruit frequently eaten, roasted, cooked under ashes, boiled with laurel leaves; flour used to make bread and cakes ('castagnaccio') [21] |
| Celtis australis L. | Cannabaceae     | Olmo bianco (o), spaccasassi (g) | Leaves       | Vet: leaves used as cicatrizer [31]; latex dissolved in water for internal use to heal heartburn [25] |
| Ceratonia siliqua L. | Fabaceae        | Carruba, carrobie (c)        | Seeds        | Food: seeds eaten as sweets or used to make sweets with onion [35, 48] |
| Cercis silicuasstrum L. | Fabaceae       |                              | Twigs        | Mix: young twigs to make ties                                       |                              |
| Chelidonium majus L. | Papaveraceae    |                              | Latex        | Dye: plant used to dye clothes yellow [37]                           |                              |
| Chenopodium album L. | Amaranthaceae   | Spinacio selvatica (g)       | Leaves       | Food: leaves boiled and served as side dish, like spinach [39, 41]   |                              |
| Chenopodium bonus-henricus L. | Amaranthaceae | Buon enrico, spinacio selvatica (g) | Leaves       | Med: boiled leaves put on burns as emollient                        | Similar use in [37]          |
| Cichorium intybus L. | Asteraceae      | Grugni (c, g), grugni selvatici, grugni campagnoli (g) | Leaves       | Food: boiled leaves in vegetable mixtures, for seasoning risotto, filling fresh pasta; raw leaves with pine nuts, walnuts, oil, boiled as seasoning [39, 48] |
|                 |                 |                              |              | Med: boiled leaves used as deglutative and diuretic [21, 43]; as anti-anaemic [23], boiled in vegetable mixture as a |                              |
| Scientific name                  | Family          | Local names                                      | Parts used                                                                 | Uses                                                                                           | References for similar uses |
|---------------------------------|-----------------|-------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------|
| *Cirsium arvense* (L.) Scop.     | Asteraceae      | Roots, leaves, flowers                           | Food: roasted roots as surrogate for coffee [37]                           | Sup/rel: roots have protective value                                                          |                              |
| *Citrus limon* (L.) Osbeck       | Rutaceae        | Flowers                                         | Med: flowers decoction to heal cough [37]                                  | Fruits used to heal skin disease [26]                                                        |                              |
| *Clematis vitalba* L.           | Ranunculaceae   | Leaves, flowers                                  | Med: leaf decoction as diuretic [37]                                        |                                                                                               |                              |
| *Clinopodium nepeta* (L.) Kuntze.| Lamiaceae       | Leaves, flowers                                  | Med: poultice of leaves as emollient [27, 37]                              | Cosm: leaves used to flavour meat, vegetables, omelettes, soups [4, 34, 39, 41, 44]          |                              |
| *Convolvulus arvensis* L.        | Convolvulaceae  | Leaves                                          | Med: crushed fresh leaves applied to skin to heal pimples [37]             |                                                                                               |                              |
| *Cornus mas* L.                 | Cornaceae       | Flower, shoots                                   | Med: shoot infusion as febrifuge [37]                                      |                                                                                               |                              |
| *Cornus sanguinea* L.           | Cornaceae       | Fruits, flowers                                  | Fruits used to flavour grappa [23, 42]; fruit eaten raw [37, 42, 45]        |                                                                                               |                              |
| *Corylus avellana* L.           | Betulaceae      | Wood                                            | Craft: wood used to build boats                                            |                                                                                               |                              |
| Scientific name     | Family         | Local names                        | Parts used      | Uses                                                                 | References for similar uses |
|---------------------|----------------|------------------------------------|-----------------|----------------------------------------------------------------------|------------------------------|
| *Cota tinctoria* (L.) J.Gay. | Asteraceae     | *Falsa camomilla*, *camomilla tinta* (g) | Whole plant     | *Sup/rel: plant protects against lightning*                           |                              |
| *Crataegus monogyna* Jacq. | Rosaceae       | *Biancospino*, *porcospino*, *albero delle Perelle* (g) | Flowers          | *Sup/rel: flowers used in 'infiorata' Dye: flowers in boiled water to dye wool yellow* [37] |
|                      |                |                                    | Med: flowers    | *Med: flowers and leaf infusion to heal heart problems, as anti-hypertensive* [21, 23, 42] |
|                      |                |                                    | Med: leaves, flowers | *Med: dry fruit heated in little bag and used to heal rheumatic pains* |
|                      |                |                                    | Fruits          | Food: fruit eaten raw, to make jams, liqueurs [37, 41, 42] Vet: *fruit poultice used to heal 'spallone' in cattle* (bruising caused by 'giogo'-yoke) |
|                      |                |                                    |                 | Wood Dom: wood used to light fires and heat the oven, with *Olea europaea* L. branches. It was said to give bread a good aroma [36] Sup/rel: plant had religious value, because it flowered from the stick of Giuseppe d’Arimatea Other magic uses in [37] |
| *Crepis vesicaria* L. | Asteraceae     | *Grugno porcino* (g)               | Basal rosette   | Food: leaves boiled in vegetable mixture as side dish [4, 34, 39, 41, 44] |
| *Cithroum monanthum* L. | Apiaceae      | *Paccasassi*, *spaccasassi* (c)    | Leaves, shoots  | Food: leaves boiled in water and vinegar and preserved in olive oil [24, 39, 48] |
| *Cruciata laevipes* Opiz | Rubiaceae    | *Erba croce* (a)                   | Leaves          | Med: leaf juice drank as vermifuge* [37], *leaf decoction to heal intestinal obstructions* |
|                      |                |                                    |                 |                      |
| *Cynodon dactylon* (L.) Pers. | Poaceae      | *Gramaccia* (c, g)                 | Roots           | Food: *raw roots eaten in salads* [5] Vet: *plant really liked by pigs* Veterinary food use for ruminants and horses [4] |
|                      |                |                                    | Aerial part     |                             |
| *Daucus carota* L.   | Apiaceae       |                                    | Roots           | Med: roots crushed and poultice, used to heal burns [26, 27] Food: roots eaten and boiled as side dish in famine period [23, 39] |
|                      |                |                                    |                 |                             |
| *Dioscorea communis* (L.) Caddick and Wilkin | Dioscoreaceae | *Viticella* (g)                    | Shoots          | Food: shoots boiled and used to make omelettes [24, 39, 44] |
|                      |                |                                    |                 |                             |
| *Diploptaxis erucoides* (L.) DC. | Brassicaceae | *Rughetta* (o), *fiore bianco* (c), *carrugola selvatica*, *carrugola*, *carrucola* (g) | Leaves          | Med: *raw leaves eaten as digestive* Food: raw leaves in salads; boiled as side dish [34, 39, 41, 44] |
| *Diploptaxis tenuifolia* (L.) DC. | Brassicaceae |                                    | Leaves          | Med: *raw leaves eaten as digestive* Food: raw leaves for seasoning pizza, salads; boiled for seasoning pasta [4, 34, 39, 41, 42, 45] |
| *Echium vulgare* L.  | Boraginaceae   | *Erba viperina* (g)                | Leaves          | Food: *leaves of basal rosette boiled in vegetable mixtures as side dish* [39, 44] |
Table 1  The species of ethnobotanical interest in the Ancona district (Continued)

| Scientific name       | Family        | Local names            | Parts used | Uses                                                                 | References for similar uses |
|-----------------------|---------------|------------------------|------------|----------------------------------------------------------------------|-----------------------------|
| Elymus repens         | Poaceae       | Gramaccia (c, g); gramigna, grano delle formiche (o) | Roots      | Med: root decoction as depurative [4, 31, 43, 44]                     |                             |
|                       |               |                        | Seeds      |                                                                      |                             |
|                       |               |                        | Ears       | Recr: children play with ears, detaching them one by one to see if desire comes true |                             |
|                       |               |                        | Aerial part| Med: decoction to heal abdominal pain; crushed plant put on forehead to heal nose bleed |                             |
|                       |               |                        | Whole plant| Prov: ‘Le donne molto feconde sono come la gramaccia’, ‘Esse taccati come la gramigna’ |                             |
| Equisetum arvense L.  | Equisetaceae  | Coda cavallina (c)     | Aerial part| Med: stem decoction used as footbath to heal excessive perspiration [4] |                             |
|                       |               |                        | Shoots     | Food: young shoots fried or boiled to make omelettes [37, 44, 45]    |                             |
| Equisetum              | Equisetaceae  | Coda cavallina (g)     | Aerial part| Med: stem decoction used as footbath to heal excessive perspiration [4]; stem decoction instilled in nose to heal nosebleed [26] or inhaled against nosebleed |                             |
| telmateia Ehrh.       |               |                        |            | Cosm: to reinforce nails, fingers were put in stem decoction [26]. Stem decoction used to purify skin [36] |                             |
|                       |               |                        |            | Dom: stems used to polish kitchenware [23]                           |                             |
| Eucalyptus camaldulensis Dehnh. | Myrtaceae | Ocalitto (o)          | Leaves     | Med: leaf decoction as antipyretic [37]                              | Similar use for E. globulus Labill. [36] |
| Euphorbia helioscopia L. | Euphorbiaceae | Latte del diavolo (a) | Latex      | Sup/rel: latex has protective value                                  |                             |
| Euphorbia kathiyris L. | Euphorbiaceae |                        | Whole plant| Rep: species planted in orchards to kept them clear from rats [24]    | To heal warts in [26]       |
| Euphorbia peplus L.   | Euphorbiaceae | Tortumaio (c)          | Latex      | Med: fresh latex on wounds as cicatrizier                           |                             |
| Ficaria verna Huds.   | Ranunculaceae | Botton d’oro (g)       | Leaves     | Med: crushed leaves to heal arthritis pain                         |                             |
| Ficus carica L.       | Moraceae      | Figo (o, c)            | Latex      | Med: latex used to heal warts and calluses [4, 21, 26, 37]           |                             |
|                       |               |                        |            | Cosm: latex appears to be used to be more tanned                   |                             |
|                       |               |                        |            | Fruits: Fruits are eaten raw or used to make jams [21, 41, 42, 45]   |                             |
|                       |               |                        |            | Shoots, twigs: Sup/rel: shoots put in St. John’s water [37]          |                             |
Table 1 The species of ethnobotanical interest in the Ancona district (Continued)

| Scientific name | Family       | Local names                   | Parts used  | Uses                                                                                     | References for similar uses |
|-----------------|--------------|-------------------------------|-------------|----------------------------------------------------------------------------------------|-------------------------------|
| **Foeniculum vulgare Mill.** | Apiaceae     | Finocchio selvatica (c, o, g), finocchio cavallì (c), finocchietto (g) | Twigs       | Sup/rel: twigs used to make crosses to put out of the doors during St. John’s night  
Mix: twigs used to stir milk to curdle it [37] |                               |
|                  |              |                               | Whole plant | Sup/rel: plant has protective value  
Prov: ‘Anna fico, poco granaio’, ‘Non vale un fico secco’ |                               |
| **Foeniculum vulgare Mill.** | Apiaceae     |                               | Roots       | Med: root infusion as diuretic [37]                                                     |                               |
|                  |              |                               | Seeds       | Med: seed infusion as galactagogue [23], digestive [25], as anti-anaemic [23], to heal colics |                               |
|                  |              |                               | Food:       | to flavour bread [37]                                                                     |                               |
|                  |              |                               | Leaves, seeds | Food: to flavour pork, suckling pig (porchetta), rabbit, sea and land snails, olives, for boiling chestnut [4, 21, 23, 30, 37, 39, 42, 44, 45] |                               |
| **Fragaria vesca L.** | Rosaceae     | Fragola selvatica, fragolina di bosco (g) | Fruits      | Food: fruit eaten as fresh fruit or in jams [37, 44]                                     |                               |
| **Fraxinus ornus L.** | Oleaceae     | Ornello                       | Leaves      | Med: leaves used as substitute for tea                                                  | Similar use for the fruit [37] |
| **Fumaria officinalis L.** | Papaveraceae | Erba de purghe (o)            | Leaves      | Med: leaves and aerial parts crushed and used as emollient [25]                       |                               |
|                  |              |                               |             | Food: some leaves in soups                                                              | Similar use of the ‘fruit’ [36] |
|                  |              |                               | Leaves, stems | Med: leaf and stem infusions as depurative and anti-inflammatory                      |                               |
| **Galium aparine L.** | Rubiaceae    | Attaccamà (o)                  | Leaves, stems | Mix: leaves and stems used as rennet for milk                                           | Similar use for Galium sp. [37] |
| **Gentiana lutea L.** | Gentianaceae  |                               | Roots       | Food: roots notoriously used in liqueurs in the Apennine area [27, 37]                |                               |
| **Geranium dissectum L.** | Geraniaceae  | Sbrandella (o)                 | Leaves      | Med: leaf infusion as anti-haemorrhoidal                                               | The same use for Geranium robertianum L. [37] |
| **Hedera helix L.** | Araliaceae   |                               | Leaves      | Med: leaf infusions as decongestant and to heal menstrual pain [37]                   |                               |
|                  |              |                               |             | Cosm: leaf decoctions used to stain hair [21]                                          |                               |
|                  |              |                               |             | Dye: leaf decoction used to revitalise dark colour and to dye green [4, 37]           |                               |
| **Hedysarum coronarium L.** | Leguminosae  | Lupinella (o, c, g), lupina (g) | Leaves      | Med: leaf infusion as galactagogue                                                     |                               |
|                  |              |                               |             | Vet: leaves in feeding of livestock [37]                                               |                               |
|                  |              |                               |             | Flowers Sup/rel: ‘infiorata’ [23]                                                     |                               |
|                  |              |                               |             | Leases, shoots, boiled in vegetable mixtures [41], peeled                             |                               |

Lucchetti et al. Journal of Ethnobiology and Ethnomedicine (2019) 15:9
| Scientific name          | Family          | Local names                     | Parts used | Uses                                                                 | References for similar uses |
|-------------------------|-----------------|---------------------------------|------------|----------------------------------------------------------------------|------------------------------|
| Helianthus tuberosus L. | Asteraceae      | Tapinambur, girasole selvatico (g) | flowers    | stems eaten as snack [24]                                             |                              |
| Helminthotheca echioïdes (L.) Holub | Asteraceae | Speraina (c), sporagne, crispigne, giugni (g) | Tuber      | Food: boiled tubers to season risotto [39, 44]                        |                              |
| Humulus lupulus L.      | Cannabaceae     | Luppero (g)                      | Shoots     | Food: young shoots boiled and used to make omelettes [27, 39]         |                              |
| Hypericum perforatum L. | Hypericaceae    | Scaccadiavoli, erba di S. Giovanni (g) | Flowers    | Med: flowers in olive oil, then put in the sun, as cicatrizier, against burns [4, 21, 23, 26] |                                |
| Hypochaeris achyrophorus L. | Asteraceae | Cosce di vecchia (o)             | Leaves     | Med: leaf infusion as diuretic                                        |                              |
| Inula conyza (Griess.) DC. | Asteraceae     |                                 | Stems      | Rep: plants hung up in the granaries to keep rats away [27]           |                              |
| Jasminum officinale L.  | Oleaceae        | Gelsumì (o)                      | Flowers    | Med: flowers decoctions to heal cough                                 | Cosm: flowers in bath water to relax [36] |
| Juniperus communis L.   | Cupressaceae    |                                 | Fruits     | Food: fruit eaten as dry fruit, for seasoning pasta, for flavouring bread. Fruit harvested in St. John’s night to make ‘nocino’ [4, 37, 42] | Dom: flowers used to decorate house |
| Juniperus oxycedrus L.   | Cupressaceae    | Ginepro (c)                      | Fruits     | Med: fruit chewing to heal inappetence [23]; fruit juice eaten to heal stomach acid, fruit poultice on skin to heal sores | Food: for flavouring roast meat, liqueurs [21, 37] |

**Table 1** The species of ethnobotanical interest in the Ancona district (Continued)
| Scientific name            | Family    | Local names | Parts used       | Uses                                                                 | References for similar uses |
|----------------------------|-----------|-------------|------------------|----------------------------------------------------------------------|----------------------------|
| Laurus nobilis L.          | Lauraceae | Laru (o), alloro, baccarolo (g) | Leaves            | Sup/rel: fruit in the St. John’s water                              |                            |
|                            |           |             |                  | Med: leaf infusion as digestive [21, 37]                            |                            |
|                            |           |             |                  | Food: leaves used to flavouring meat (‘spiedini’, ‘fegatelli’, meat sauces) and fish, in boiling water of chestnuts [21, 30, 41, 42, 44, 45] |                            |
|                            |           |             |                  | Cosm: leaves in bath water to relax [37]                           |                            |
|                            |           |             |                  | Sup/rel: leaves in St. John’s water [36]                            |                            |
|                            |           |             |                  | Rep: some leaves in pots where figs were kept to keep worms away; leaves on doors to keep cockroaches away | Similar uses [4, 21, 37]    |
|                            |           |             |                  | Recr: twig crackling in fire                                        |                            |
|                           |           |             |                  | Whole plant Sup/rel: plant on the house entrance protects against lightning [37] |                            |
| Lavandula sp.              | Lamiaceae | Spigonardo (o), lavanda (c, g) spighette (c), spighetto (g) | Flowers           | Med: flowers in water to clean wounds [23], flowers macerated in alcohol to heal louse; to encourage sleep in children, dried spikelets placed near beds |                            |
|                            |           |             |                  | Vet: some spikelets in feed of dairy cows to flavouring the milk    |                            |
|                            |           |             |                  | Cosm: flowering tops macerated in water to perfume skin [26]         |                            |
|                            |           |             |                  | Sup/rel: spikelet in St. John’s water; ‘infiorata’ [4, 37]           |                            |
|                            |           |             |                  | Dom: dry spikelets into drawers to perfume clothes; in floral decorations [37] |                            |
|                            |           |             |                  | Leaves Med: fresh leaves chewed to heal gingivitis [4, 37]           |                            |
|                            |           |             |                  | Whole plant Prov: ‘Una buona raccolta vale più di un campo di grano’ |                            |
| Leopoldia comosa (L.) Parl.| Asparagaceae | Cipollaccio (g) | Bulbs            | Food: bulbs eaten raw in salads or boiled, to make omelettes [39, 41] |                            |
| Ligustrum vulgare L.        | Oleaceae   | Twigs        |                  | Mix: twigs used to make string in the grapevines [37]                |                            |
| Linum usitatissimum L.      | Linaceae   | Lino cultivato | Seeds            | Med: seed poultice applied to chest as decongestant, to heal cough [23] |                            |
| Lunaria annua L.            | Brassicaceae | Erba della luna, monete del papa (o), soldi, pianta dei soldi, dollari (g) | Leaves | Med: leaf infusion as diuretic |                            |
|                            |           |             |                  | Food: boiled leaves in vegetable mixtures                           |                            |
|                            |           |             |                  | Dom: dried plant with siliquae used to decorate house               |                            |
|                            |           |             |                  | Mix: flowers used to make wedding bouquets                         |                            |
| Malus sylvestris (L.) Mill. | Rosaceae   | Melette selvatiche (g) | Fruits | Whole plant Sup/rel: where plant grows, there it brings richness |                            |
|                            |           |             |                  | Food: fruits eaten raw, cooked, in jams [37, 42]                    |                            |
| Malva sylvestris L.         | Malvaceae  | Malva, malbe (c), malbe (g) | Leaves | Med: leaf infusion as laxative [21, 30], relaxing, depurative [4], for intimate |                            |
| Scientific name     | Family   | Local names              | Parts used          | Uses                                                                 | References for similar uses                                                                 |
|---------------------|----------|--------------------------|---------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Matricaria chamomilla L. | Asteraceae | Capumilla (c)            | Flowers             | Infusion: flowers infusion as sedative [4, 23], digestive, depurative [4], to heal haemorrhoids [37], flower poultice for eye inflammation [4, 21, 23], flowers poultice put on forehead against headaches [36] | Food: flowers used for flavouring liqueurs [37]                                              |
|                     |          |                          |                     |                                                                      | Cosm: flowers infusion to lightening hair [4]                                                   |
|                     |          |                          |                     |                                                                      | Sup/rel: flowers used in ‘infiorata’                                                            |
|                     |          |                          |                     |                                                                      | Recr: necklaces and bracelets with flowers                                                    |
|                     |          |                          |                     |                                                                      | Dom: flowers to perfume drawers                                                                |
|                     |          |                          |                     |                                                                      | Prov: ‘Il tappeto di camomilla più è calpestato e più scintilla’                              |
| Medicago lupulina L. | Fabaceae | Erba nera (o)            | Flowers, leaves     | Med: leaf and flowers infusion as lenitive and emollient            | Vet: leaves and flowers as feed for livestock                                                  |
|                     |          |                          |                     |                                                                      | Vet: leaves and flowers as feed for livestock                                                   |
|                     |          |                          |                     |                                                                      | Prov: ‘Il tappeto di camomilla più è calpestato e più scintilla’                              |
| Medicago sativa L.  | Fabaceae | Erba melica (c)          | Leaves              | Med: leaf infusion as tonic                                         | Vet: leaves and flowers as feed for livestock                                                   |
| Melissa officinalis L. | Lamiaceae |                      | Leaves and flowers | Med: leaf infusion as sedative, depurative                          | Vet: leaves and flowers as feed for livestock                                                   |
| Mentha x piperita L. | Lamiaceae |                      | Leaves, flowers     | Med: leaf infusion in vinegar to heal vomiting [37]; fresh           |                                                                                            |
Table 1 The species of ethnobotanical interest in the Ancona district (Continued)

| Scientific name                      | Family            | Local names                        | Parts used          | Uses                                                                                       | References for similar uses |
|--------------------------------------|-------------------|------------------------------------|---------------------|-------------------------------------------------------------------------------------------|------------------------------|
| Misopates arontium (L.) Raf.          | Scrophulariaceae  | Borsa del pastore, sacca del pastore (c) | Aerial part         | leaves to heal insect bites [26, 30] Food: leaves raw in salads, to make sauce for meat, risotto, syrup [4, 30, 41, 42, 44, 45] | Sup/rel: some protective uses attributed to the plant |
| Morus alba L.                        | Moraceae          | Moro (g)                            | Leaves              | Vet: leaves to feed livestock in winter, to feed silkworms [37] Flowers Dom: flowers use in floral decorations |
| Morus nigra L.                       | Moraceae          | Moro (o)                            | Roots               | Med: root juice against scorpion poison Fruits Food: raw, in jams, for flavouring grappa [4, 37, 41, 42, 45] | Sup/rel: unripe fruit as amulet |
| Myosotis arvensis (L.) Hill           | Boraginaceae      | Non ti scordar di me (o)            | Aerial part         | Med: leaf packs on tired eyes Dye: plant used to dye wool yellow [37] Vet: leaves to feed livestock | Similar to the use cited for M. ramosissima [37] |
| Nigella damascena L.                 | Ranunculaceae     | Seeds                              | Flowers             | Food: seeds use to flavour bread Similar use for pastries [36] |                              |
| Ocimum basilicum L.                  | Lamiaceae         | Leaves, flowers                    | Med: leaf and flowers infusion as sedative, galactagogue, bactericide, anti-inflammatory [27] Cosm: leaves in water bath as skin tonic and purifier [26] | Sup/rel: dry leaves to make incense Rept: plants near the windows to keep mosquitoes away [4] | Funeral use [37] |
| Olea europaea L.                     | Oleaceae          | Ullo (o)                           | Leaves              | Med: leaf decoction as hypotensive [4, 21, 33]; packs of leaves boiled in water on chest as decongestant Sup/rel: some leaves on windows to protect against hailstorms | Similar use in [32] |
|                                      |                   |                                    | Oil                 | Med: oil to heal burns [21, 26, 33], rheumatic pain; hot oil (heated in half eggshell on embers) to heal earache [24], hot oil for rubbing on chest against bronchitis [21, 33], hot oil to heal calluses Vet: oil rubbed on animals that had lost hair [37] Cosm: oil pack on hair Dom: oil used in lamps and to make detergents and soaps [37] |                              |
|                                      |                   |                                    |                     | Twigs Sup/rel: use of oil to heal devil’s eye [37], for protective use in the field see Arundo donax; twigs used in predictive ritual |                              |
|                                      |                   |                                    |                     | Wood Dom: wood use as fire starter in oven (see Crategus monogyna) [37] |                              |
| Scientific name                  | Family            | Local names                        | Parts used                  | Uses                                                                 | References for similar uses |
|---------------------------------|-------------------|------------------------------------|----------------------------|----------------------------------------------------------------------|-------------------------------|
| *Origanum majorana* L.          | Lamiaceae         |                                   | Whole plant                | Med: leaf infusion to heal cough [25]; infusion in wine to heal intermittent fever Food: flavouring [21, 41] |                               |
|                                 |                   |                                    |                            | Food: flavouring [21, 41]                                             |                               |
| *Origanum vulgare* L.           | Lamiaceae         | Menta bastarda (o)                 | Leaves and flowers         | Med: leaf decoction with internal use as digestive and antispasmodic [27, 44], external use to heal lice Food: flavour vegetables, pizzas [4, 23, 39, 45] |                               |
|                                 |                   |                                    |                            | Food: flavour vegetables, pizzas [4, 23, 39, 45]                       |                               |
| *Ornithogalum umbellatum* L.    | Asparagaceae      | Lacrime della madonna (g)          | Whole plant                | Sup/rel: where plants grown there is protection of the Madonna        |                               |
| *Ostrya carpinifolia* Scop.     | Betulaceae        | Carpino (g)                        | Leaves                     | Med: leaves macerated as anti-catarrhal                               | Vet: leaves as feed for livestock [37] |
|                                 |                   |                                    |                            | Wood                                                                  | Craft: handles, tools [4, 37]  |                               |
| *Pallis spinosa* (L.) Cass.      | Asteraceae        |                                    | Whole plant                | Mix: in the garden, as decorative                                     |                               |
| *Papaver rhoeas* L.             | Papaveraceae      | Rosoletta, rosolaccio (o), papola (c), papatelle, papaverella (g) | Leaves                     | Med: cooking water as depurative                                      | Food: basal rosette boiled in vegetable mixtures, as seasoning for polenta [4, 21, 34, 39, 41, 42] |
|                                 |                   |                                    |                            | Vet: leaves as feed for hens to increase egg laying [31]               |                               |
|                                 |                   |                                    | Seeds                      | Food: for flavouring bread                                            |                               |
|                                 |                   |                                    | Flower                     | Med: flower infusion to enhance sleep [4, 21], in enema to heal haemorrhoids Cosm: petals used for make-up [26] |                               |
|                                 |                   |                                    |                            | Sup/rel: flowers used in ‘inflorata’ [4]                               | Recr: children played guess the colour of the still closed flower: white, pink or red, saying ‘frate, monaca o cappuccino?’ (monk, nun, or Capuchin?) [4]; flowers used to make ‘bolline’ (dancers) by folding down petals and tying them with blade of grass; calyx used to make stamps for the skin |                               |
| *Parietaria officinalis* L.     | Urticaceae        | Erba murale, erba vetriola (c), erba vetriola (g) | Leaves, aerial part        | Med: crushed leaves to heal bruises [23, 26], leaf infusion as diuretic [4], fresh leaves to heal bites, burns, furuncles [4, 21, 26, 36] Food: leaves boiled in vegetable mixtures, as seasoning for pasta, in soups (also with *Urtica dioica* L. leaves) [34, 37, 44] | Dom: plant used to clean flasks/bottles [4] |
| *Passiflora caerulea* L.        | Passifloraceae    |                                    | Fruits                     | Food: *food eaten as fresh fruit*                                      |                               |
| *Pastinaca sativa* L.           | Apiaceae          | Erba sellerina (g)                 | Whole plant                | Rep: plants *left to grow near orchards to keep thieves away*         |                               |
| (Req. ex Godr.) Celak.           |                   |                                    | Whole plant                | Rep: used to put some plants on the                                    |                               |
| *Pelargonium* sp.               | Geraniaceae       |                                    | Whole plant                | Rep: used to put some plants on the                                    |                               |
Table 1 The species of ethnobotanical interest in the Ancona district (Continued)

| Scientific name | Family       | Local names                        | Parts used        | Uses                                                                 | References for similar uses                                      |
|-----------------|--------------|------------------------------------|-------------------|----------------------------------------------------------------------|-------------------------------------------------------------------|
| Petroselinum    | Apiaceae     | Erbetta (o, g)                     | Leaves            | window sill to keep mosquitoes away                                    |                                                                   |
| crispum         |              |                                    |                   | Med: crushed leaves to heal insect bites [4, 31]; leaf infusion or eat large amount of leaves to abort [37, 43]; leaf infusion on the skin to heal sunburn; Cosm: leaf infusions for lightening skin spots |                                                                   |
| (Mill.) Fuss    |              |                                    |                   |                                                                       |                                                                   |
| Phaseolus       | Fabaceae     |                                    | Seed              | Med: seed decoctions as diuretic, anti-diabetic, anti-hypertensive [27] |                                                                   |
| vulgaris L.     |              |                                    |                   | Sup/rel: dried beans as good-luck amulet                             |                                                                   |
| Picris          | Asteraceae   |                                    | Leaves            | Med: cooking water as diuretic                                        |                                                                   |
| hieracioides    |              |                                    |                   |                                                                       |                                                                   |
| Sibth. and Sm.  |              |                                    |                   |                                                                       |                                                                   |
| Pimpinella      | Apiaceae     |                                    | Seeds             | Med: seed infusion as galactagogue [36]; antispasmodic [37]            |                                                                   |
| anisum L.       |              |                                    |                   |                                                                       |                                                                   |
| Pinus pinea L.  | Pinaceae     |                                    | Young cones, buds | Med: buds infusion to heal respiratory affections [21, 37]           |                                                                   |
| Plantago        | Plantaginaceae| Lingua di cane (o, c), recchie di pecora (o), recchie d’asino, recchie d’asino (c), orecchie di pec, centonieri (g) | Leaves |                                                                       |                                                                   |
| lanceolata L.   |              |                                    |                   | Med: leaf infusion as anti-diarrhoeal; leaf packs to heal insects bites [4, 21, 33] and sprains [4, 31], as haemostatic |                                                                   |
| Plantago        | Plantaginaceae|                                    |                   |                                                                       |                                                                   |
| major L.        |              |                                    | Leaves            |                                                                       |                                                                   |
| Polygonum       | Polygonaceae | Erba dei centanodi (c)             | Stems             |                                                                       |                                                                   |
| aviculare L.    |              |                                    |                   | Mix: stems used to make ties                                          |                                                                   |
| Populus alba L. | Salicaceae   |                                    | Twigs             |                                                                       |                                                                   |
| Portulaca       | Portulacaceae| Sportellacchia, porcellana (c), erba grassa, procacchia, procaccia (g) | Leaves | Med: fresh leaves chewed to heal gingival inflammation; crushed leaves to heal pimples [30, 43] |                                                                   |
| oleracea L.     |              |                                    |                   |                                                                       |                                                                   |

Lucchetti et al. Journal of Ethnobiology and Ethnomedicine (2019) 15:9
| Scientific name         | Family             | Local names                  | Parts used          | Uses                                                                 | References for similar uses                                                                 |
|------------------------|--------------------|------------------------------|---------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Primula vulgaris Huds. | Primulaceae        |                               | Leaves, flowers     | Food: raw leaves and flowers in salads [39]                         |                                                                                              |
| Prunus avium (L.) L.   | Rosaceae           | Cerase Selvatiche, cerase (g) | Fruits, peduncles   | Med: peduncles infusion as depurative and laxative [37]                | Food: fruit eaten as fresh fruit                                                              |
|                        |                    |                              | Leaves              | Cosm: leaf infusion to rehydrate skin                                 | Rep: some to keep fleas away from hen-house [29]                                            |
| Prunus cerasus L.      | Rosaceae           | Visciola (g)                 | Fruits              | Med: cooked fruit as anti-diarrhoeal [30]                              | Food: raw fruit eaten as snack (only after first frost period); to make jams, liqueurs       |
| Prunus dulcis (Mill.) D.A.Webb | Rosaceae |                                | Leaves              | Med: leaves and epicarp decoction to heal cough [26, 36, 37]          | Sup/rel: predictive value attributed to plant                                                  |
| Prunus spinosa L.      | Rosaceae           | Prugnolo, bruognolo (c, g), scancio (g) | Fruits              | Med: cooked fruit as anti-diarrhoeal [30]                              | Food: raw fruit eaten as snack (only after first frost period); to make jams, liqueurs       |
| Pulicaria dysenterica (L.) Gaertn. | Asteraceae | Mentastro (o)                | Aerial part         | Med: plant infusion as anti-diarrhoeal [37]                           | Rep: plants burned in the hen-house to kill parasites [37]                                   |
| Punica granatum L.     | Lythraceae         |                               | Fruits              | Med: fruit were eaten raw to heal diarrhoea or heated with honey to heal cough [37] | Food: fruit eaten raw [41, 42] Sup/rel: fruit were used in a propitiatory ritual               |
| Quercus ilex L.        | Fagaceae           | Elce (o)                     | Acorns, bark        | Med: decoction as anti-diarrhoeal and anti-inflammatory [37]          |                                                                                              |
|                        |                    |                              | Acorns              | Food: roasted acorns as a surrogate for coffee, milled acorns to make bread [5, 37] | Vet: acorns to feed pigs [37]                                                                |
| Quercus pubescens Willd. | Fagaceae           | Quercia, cerqua (g)          | Leaves              | Med: leaves smoked against malaria                                   | Moc dried leaves of Quercus pubescens as tobacco substitutes [37]                            |
|                        |                    |                              | Acorns              | Vet: acorns to feed pigs: to prepare mash (‘berò’) with barley, corns, and water; rabbits: as medicinal feed for rabbits with diarrhoea [23, 37] | Galls Rec: galls used as marbles                                                              |
|                        |                    |                              | Galls               | Recr: half cut acorns used as dolls ‘eyes                             |                                                                                              |
| Quercus robur L.       | Fagaceae           | Quercia, midullo (g)         | Acorns              | Vet: acorns to feed pigs                                             | Galls Rec: galls were used as marbles                                                         |
|                        |                    |                              | Galls               | Recr: half cut acorns used as dolls ‘eyes                             |                                                                                              |
|                        |                    |                              | Wood                | Craft: wood used to make various tools and furniture, to make kneading tables, manger (‘greppia’) for livestock |                                                                                              |

Similar uses referred to Quercus sp., [37]
Table 1 The species of ethnobotanical interest in the Ancona district (Continued)

| Scientific name            | Family         | Local names                  | Parts used                  | Uses                                                                 | References for similar uses                        |
|----------------------------|----------------|------------------------------|-----------------------------|----------------------------------------------------------------------|-----------------------------------------------------|
| Ranunculus bulbosus L      | Ranunculaceae  | Bottocino d’oro (g)          | Leaves                      | Med: fresh leaves to heal cold sores                                 | Similar use for Ranunculus velutinus Ten. [26, 37]  |
| Ranunculus velutinus Ten.   | Ranunculaceae  |                              | Leaves                      | Med: crushed leaves in packs to heal sciatica                       | Similar use for Ranunculus bulbosus L. [37]        |
|                            |                |                              |                             | **Food**: leaves boiled in vegetable mixtures                        | Similar use for Ranunculus bulbosus L. [37]        |
| Raphanus raphanistrum L.    | Brassicaceae   | Senapi (c)                   | Leaves                      | Food: leaves boiled in vegetable mixtures [4, 21, 39, 41, 44]        |                                                     |
| Reichardia picooides (L.)   | Asteraceae     | Caccialepre (c, g),         | Leaves                      | Med: leaves eaten or in infusion as depurative [21, 37]; refreshing [37], diuretic, analgesic, anti-scrobucf; fresh crushed leaves to heal toothache and headache [43] | Food: leaves raw in salads, boiled in vegetable mixtures [4, 21, 30, 34, 37, 39, 41, 44] |
| Roth                       |                | scaccialepre, caccialè (g)   |                             |                                                                      |                                                     |
| Robinia pseudoacacia L.     | Fabaceae       | Scarpetta della madonna (o),| Flowers                     | Med: flowers decoction sedative [30]                                 |                                                     |
|                            |                | cascia (g)                   |                             | Food: flowers fried in sweet batters; for flavouring grappa [4, 30, 42, 45] |                                                     |
|                            |                |                              |                             | Sup/rel: flowers used in St. John’s water; in ‘inforata’ [4, 37]     |                                                     |
|                            |                |                              |                             | **Mix**: flowers used in floral decorations in churches               |                                                     |
|                            |                |                              | Leaves                      | Vet: some leaves for feeding rabbits (‘for other animals they are poisonous’) | Leaves in fodder [37]                               |
|                            |                |                              | Seeds                       | **Sup/rel**: dried seeds used to make rosaries                        |                                                     |
|                            |                |                              | Roots                       | **Mix**: roots used to make ties                                      |                                                     |
|                            |                |                              | Wood                        | Dom: wood used as firewood [37]                                       |                                                     |
| Rosa canina L.              | Rosaceae       | Rosa selvatica (c, a, g),    | Fruits (pseudo-fruits),     | Med: fruit infusion as febrifuge                                       |                                                     |
|                            |                | rosa di macchia (a)          | without internal hair       | Food: fruit used to make jams (sometimes with apples) [4, 44]         |                                                     |
|                            |                |                              |                             | Vet: fruit for feeding hens                                           |                                                     |
|                            |                |                              |                             | Cosm: crushed fruit as beauty mask                                   |                                                     |
|                            |                |                              |                             | Recr: fruit to make necklaces [37]                                    |                                                     |
|                            |                |                              | Leaves                      | **Med**: fresh leaf infusion to heal wounds, as cicatrizor            |                                                     |
|                            |                |                              | Flowers                     | Med: petals macerated in vinegar to heal insect bites; petal infusion as laxative, diuretic [37] | Food: petals used to make liquors [37]              |
|                            |                |                              |                             | Food: petals used to make liquors [37]                               | Sup/rel: flowers used in St. John’s water; ‘inforata’ [4] |
|                            |                |                              |                             | Cosm: petals in infusion for a month in water to make water rose [26]|                                                     |
|                            |                |                              |                             | Dom: perfume for the house                                            |                                                     |
| Rosmarinus officinalis L.   | Lamiaceae      | Leaves, flowers              |                             | Med: leaf infusion with wine and honey as tonic [4, 25, 30]; leaf decoction as digestive [21, 42]; leaf and flowers pack as cicatrizor; plant was smelled as tonic |                                                     |
Table 1 The species of ethnobotanical interest in the Ancona district (Continued)

| Scientific name          | Family        | Local names     | Parts used       | Uses                                                                 | References for similar uses |
|--------------------------|---------------|-----------------|------------------|----------------------------------------------------------------------|-----------------------------|
| Rubus ulmifolius Schott   | Rosaceae      | Spino, mare (g) | Leaves           | Food: leaves and flowers for flavouring, for filling ravioli [30, 41, 42, 44, 45] |                             |
|                          |               |                 |                  | Vet: some leaves for feeding dairy cattle to flavour their milk       |                             |
|                          |               |                 |                  | Cosm: leaf decoction to shine hair; in bath water and in ointments as skin tonic [26] |                             |
|                          |               |                 |                  | Sup/rel: plant has predictive value; for protective use on St. John’s night, see Artemisia vulgaris |                             |
| Rumex obtusifolius L.     | Polygonaceae  | Rombie (o, g)   | Roots, leaves    | Med: root decoction as tonic                                         | Similar use for Rumex crispus L. [37] |
|                          |               |                 |                  | Med: roots and leaf decoction as anti-diarrhoeal                      |                             |
|                          |               |                 | Leaves           | Med: leaf pack to heal burns [21]                                    |                             |
|                          |               |                 |                  | Food: boiled leaves in vegetable mixtures [39]                       |                             |
| Rumex pulcher L.          | Polygonaceae  |                  | Roots, leaves    | Vet: for feeding livestock [21]                                      |                             |
|                          |               |                 |                  | Med: roots and leaf decoction as anti-diarrhoeal                      |                             |
| Ruscus aculeatus L.       | Asparagaceae  | Piccasori (g)   | Shoots           | Food: boiled young shoots to make omelettes [4, 24, 41, 44, 45]      |                             |
| Ruta graveolens L.        | Rutaceae      |                  | Leaves           | Med: plant sniffed as vermifuge [4, 23]; a leaf a day eaten to strengthening eyesight [37]; raw leaves eaten to heal stomach ache; pack with leaf decoction to heal tired eyes [4] |                             |
|                          |               |                 |                  | Food: some raw leaves in salads [23], for flavouring meat, fish, liqueurs |                             |
|                          |               |                 |                  | Vet: plant can cause intestinal problems for cattle                  |                             |
|                          |               |                 |                  | Sup/rel: leaf in the pocket has protective use; for protective use on St. John’s night, see Artemisia vulgaris |                             |
|                          |               |                 |                  | Rep: some plants planted near orchard to keep parasites and rats away [21, 23] |                             |
|                          |               |                 |                  | Prov: ‘La ruta fa venir la vista acuta’                                |                             |
| Salix alba L.             | Salicaceae    | Moia (g)        | Twigs            | Mix: twigs used to make ties and baskets [23]                        |                             |
| Salix viminalis L.        | Salicaceae    | Vimini, vengo (c), vimine, vincio (g) | Twigs            | Mix: twigs used to make ties [37]                                    |                             |
| Salsola soda L.           | Amaranthaceae | Roscani (a)     | Leaves           | Med: raw leaves or in decoction as depurative and refreshing         |                             |
|                          |               |                 |                  | Food: boiled leaves as side dish                                      |                             |
| Salsola soda L.           | Amaranthaceae | Roscani (a)     | Leaves           | Med: leaf infusion is used as stomachic [27, 36], digestive [21], hypotensive [21], to heal diarrhoea |                             |
|                          |               |                 |                  | Food: raw leaves flavouring meat, fried [4, 21, 37, 41]               |                             |
| Salvia officinalis L.     | Lamiaceae     |                 | Leaves           | Vet: leaves as feed for dairy cattle for                               |                             |
| Scientific name     | Family    | Local names                  | Parts used | Uses                                                                 | References for similar uses                  |
|---------------------|-----------|------------------------------|------------|----------------------------------------------------------------------|-----------------------------------------------|
| *Salvia verbenaca*  | Lamiaceae | *Salvia selvatica* (o, g),  | Leaves     | Med: crushed fresh leaves to heal wounds [21, 31], as cicatriz [27], dried leaves smoked to heal headache; leaf infusion with honey and lemon as digestive   | Similar use for *Salvia officinalis* L. [37, 26, 4]; as toothpaste [37] |
|                     |           | *betonica*, *bettonica*,     |            | Cosm: fresh leaves rubbed on teeth as whitening                        |                                                |
|                     |           | *brettonica*, *vettonica* (c) |            | Dom: dried leaves to perfume linen                                     |                                                |
|                     |           |                              |            | Prov: ‘*La salvia salva*’                                                |                                                |
|                     |           |                              |            | Sup/rel: plant related to some magic rituals                           |                                                |
| *Sambucus nigra*    | Adoxaceae | *Albero delle streghe* (o)   | Flowers    | Med: flowers infusion to heal cough [21, 27, 33, 37]                   |                                                |
|                     |           |                              |            | Food: flowers fried in sweet batter [4, 30]                            |                                                |
|                     |           |                              |            | Dom: for ripening apples, they were alternated with elder flowers [37] |                                                |
|                     |           |                              |            | Leaves Med: boiled leaves to heal abscesses [4, 21, 31]                |                                                |
|                     |           |                              |            | Rep: leaf decoction to keep ants away [36]                             |                                                |
|                     |           |                              |            | Shoots Cosm: shoots put in olive oil and exposed to sun to make cream for chapped hands | Similar use with medulla [25] |
|                     |           |                              |            | Fruits Vet: crushed fruit infusion used to improve colour of cow tails |                                                |
|                     |           |                              |            | Dye: fruit used to dye clothes blue and violet, in boiling water [37]  |                                                |
|                     |           |                              |            | Mix: crushed fruit boiled in vinegar to make ink [37]                  |                                                |
|                     |           |                              |            | Wood Craft: to make handles, tools [37]                                |                                                |
|                     |           |                              |            | Recr: empty wood used to make blowguns [4]                             |                                                |
| *Sanguisorba minor* | Rosaceae  |                            | Leaves     | Med: leaf infusion as anti-diarrhoeal* [25, 37], to heal wounds and burns |                                                |
| Scop.               |           |                              |            | Food: raw leaves in salads [4, 30, 34, 39, 42]                         |                                                |
|                     |           |                              |            | Vet: leaves as galactagogue feed for livestock [37]                    |                                                |
| *Saponaria officinalis* |         |                            | Aerial part | Cosm: leaf decoction to wash hair [37]                                 |                                                |
| L.                  | Caryophyllaceae |                            |            | Med: leaf infusion to heal oral cavity inflammation [21, 37]          |                                                |
| *Satureja montana*  | Lamiaceae |                            | Leaves     | Med: crushed fresh leaves to heal wounds [21, 31], as cicatriz [27], dried leaves smoked to heal headache; leaf infusion with honey and lemon as digestive   | Similar use for *Salvia officinalis* L. [37, 26, 4]; as toothpaste [37] |
| L.                  |           |                              |            | Cosm: fresh leaves rubbed on teeth as whitening                        |                                                |
|                     |           |                              |            | Dom: dried leaves to perfume linen                                     |                                                |
|                     |           |                              |            | Prov: ‘*La salvia salva*’                                                |                                                |
|                     |           |                              |            | Sup/rel: plant related to some magic rituals                           |                                                |
|                     |           |                              |            | Flavouring their milk                                                  |                                                |
|                     |           |                              |            | Cosm: fresh leaf rubbed on teeth as whitening, for refreshing breath [4, 26, 37] |                                                |
|                     |           |                              |            | Dom: dried leaves to perfume linen                                     |                                                |
|                     |           |                              |            | Prov: ‘*La salvia salva*’                                                |                                                |
| Scientific name | Family | Local names | Parts used | Uses | References for similar uses |
|-----------------|--------|-------------|------------|------|-----------------------------|
| **Scabiosa columbiana** L. | Caprifoliaceae | Erba di campo (g) | Leaves | Food: for flavouring meat, omelettes [21], vinegar | |
| **Silene latifolia** subsp. alba (Mlll.) Greuter and Burdet | Caryophyllaceae | Baccon di pecora (o) | Leaves | Food: boiled leaves (with corn cake) [37, 39] | Vet: some leaves in livestock feed |
| **Silene vulgaris** (Moench) Garcke | Caryophyllaceae | Consigli, colcigli (g) | Leaves | Food: boiled leaves as individual side dish for risotto, omelettes [24] | Flowers: children played to make flower burst to produce biggest noise [37] |
| **Sinapis alba** L. | Brassicaceae | Rapetta (o, g), rapacciola (g) | Seed | Med: poultice of seeds as anti-rheumatic | Food: to flavour apricots in vinegar |
| **Solanum tuberosum** L. | Solanaceae | | Tuber | Med: some slices as emollient to heal burns [23] | |
| **Sonchus arvensis** L. | Asteraceae | Grespigno (c) | Leaves | Food: basal rosette raw in salads or boiled in vegetable mixtures [37, 39, 42] | Vet: leaves as galactagogue for rabbits |
| **Sonchus asper** (L.) Hill | Asteraceae | Grespigna, grispigna (a), grispigne, grispigne (g) | Leaves | Med: leaves as galactagogue [37] | Food: boiled leaves in vegetable mixtures, soups, for filling ravioli [34, 39, 41, 42, 44] |
| **Sonchus oleraceus** (L.) L. | Asteraceae | | Leaves | Med: leaf cooking water as diuretic [27]; leaf decoctions to heal kidney stones [25] | Food: boiled leaves in vegetable mixtures [4, 34, 39, 41, 44] |
| **Sorbus domestica** L. | Rosaceae | Sorbo, sorba (g) | Fruits | Med: fruit decoctions as blood depurative | Food: raw fruits, for jams [37, 41, 42, 45] |
| **Spartium junceum** L. | Fabaceae | Flowers | Sup/rel: flowers in St. John’s water; in ‘infiorata’ [4, 23] | Vet: crushed flowers against parasites in livestock | Similar medicinal use [26] |
| **Stachys annua** (L.) L. | Lamiaeae | Erba ella madonna (c) | Leaves | Med: leaves infusion used to wash face to heal headache | |
| **Stachys officinalis** (L.) Trevisan | Lamiaeae | | Whole plant | Sup/rel: magical qualities were attributed to the plant because it resists fires | Similar use for Stachys sp. [26]; Stachis recta [21] |
| **Tanacetum balsamita** L. | Asteraceae | Cacirola (g) | Leaves | Food: leaves used for flavouring omelettes [39] | |
| **Tanacetum** | Asteraceae | Matrecara, erba amara (c) | Leaves | Med: raw leaves to heal headache [38]; leaf |
| Scientific name                  | Family       | Local names                                      | Parts used  | Uses                                      | References for similar uses |
|---------------------------------|--------------|--------------------------------------------------|-------------|-------------------------------------------|-----------------------------|
| Parthenium (L.) Sch. Bip.        |              |                                                  |             | infusion digestive [37]                   |                             |
|                                 |              |                                                  |             | Food: leaves to make sweet pancakes [37]  |                             |
| Flowers                         |              |                                                  |             | Med: eat flowers or flower decoction as   |                             |
|                                 |              |                                                  |             | vermifuge [37]                            | Similar use [37]            |
|                                 |              |                                                  |             | Food: flowers used for flavouring vinegar |                             |
| Whole plants                    |              |                                                  |             | Rep: plants left grow up near granaries to |                             |
|                                 |              |                                                  |             | keep rats away                            |                             |
| <i>Taraxacum campylodes</i> G. E. Haglund | Asteraceae | <i>Soffione</i> (o, c, g), pisciacane (o, c, g), dente di leone (c), cicoriella (g) | Roots       | Med: roots decoction as depurative [37],  |                             |
|                                 |              |                                                  |             | diuretic, and laxative                    |                             |
|                                 |              |                                                  |             | Food: roasted roots as coffee substitute  |                             |
|                                 |              |                                                  |             | [37]                                      |                             |
|                                 |              |                                                  |             | Leaves Food: basal rosettes raw in salads, |                             |
|                                 |              |                                                  |             | boiled in vegetable mixtures as side dishes |                             |
|                                 |              |                                                  |             | [4, 34, 37, 39, 41, 42, 44]               |                             |
|                                 |              |                                                  |             | Vet: leaves as feeding for livestock [37], in |                             |
|                                 |              |                                                  |             | particular for healing meteorism          |                             |
|                                 |              |                                                  |             | Flowers Recr: children express wish and blow |                             |
|                                 |              |                                                  |             | the achens [37]                           |                             |
| <i>Thymus vulgaris</i> L.       | Lamiaceae    |                                                  | Leaves      | Med: leaf ointment as decongestant and     |                             |
|                                 |              |                                                  |             | expectorant [21]                          |                             |
|                                 |              |                                                  |             | Rep: dried leaves as repellent for moths   |                             |
|                                 |              |                                                  |             | in drawers                                 |                             |
| <i>Tilia cordata</i> Mill.      | Malvaceae    | <i>Tijo</i> (o)                                  | Flowers,    | Med: flowers and bracts infusion to heal   |                             |
|                                 |              |                                                  | bracts      | cough [23]; in bath water as sedative for  |                             |
|                                 |              |                                                  |             | babies [37]; in pack for tired eyes       |                             |
| <i>Tragopogon pratensis</i> L. | Asteraceae   |                                                  | Leaves      | Food: young leaves boiled as individual    |                             |
|                                 |              |                                                  |             | side dishes or to make omelettes [24]      |                             |
| <i>Trifolium pratense</i> L.    | Fabaceae     | <i>Pane del latte</i> (o)                        | Leaves      | Med: leaf infusion as expectorant [27, 37]  |                             |
|                                 |              |                                                  |             | Vet: feed for livestock [37]               |                             |
|                                 |              |                                                  |             | Flowers Food: fried flowers in salt batter |                             |
|                                 |              |                                                  |             | Different food uses of flowers [35, 42]    |                             |
|                                 |              |                                                  |            | Aerial part Recr: depending on where leaves |                             |
|                                 |              |                                                  |             | are oriented, guess where the storm is     |                             |
|                                 |              |                                                  |             | coming from                               |                             |
| <i>Trifolium repens</i> L.      | Fabaceae     |                                                  | Leaves,     | Med: leaf infusion as anti-rheumatic [37]  |                             |
|                                 |              |                                                  | flowers     | Food: leaves and flowers sautéed with      |                             |
|                                 |              |                                                  |             | onion and potatoes as side dish; flowers   | Guerrero 2006               |
|                                 |              |                                                  |             | for flavouring bread                       |                             |
|                                 |              |                                                  |             | Vet: feed for livestock                     |                             |
|                                 |              |                                                  |             | Similar use for T. pratense [37]           |                             |
| <i>Triticum turgidum</i> L.    | Poaceae      |                                                  | Seeds       | Med: boiled or hot wheat on skin as        |                             |
|                                 |              |                                                  |             | anti-rheumatic [37]                        |                             |
|                                 |              |                                                  |             | Ears Sup/rel: four ears as cross on St.    |                             |
|                                 |              |                                                  |             | John’s water; take some ears into the house |                             |
|                                 |              |                                                  |             | as good luck talisman; stems and ears used |                             |
|                                 |              |                                                  |             | in ‘Festa del Covo’                         |                             |
| <i>Ulmus minor</i> Mill.        | Ulmaceae     | <i>Olmo, olmo viscio</i> (g)                     | Leaves      | Vet: leaves as winter feed for livestock   |                             |
|                                 |              |                                                  |             | (‘la fronda’) [24]                         |                             |
|                                 |              |                                                  |             | Branches, wood Sup/rel: branches used for   |                             |
|                                 |              |                                                  |             | ‘forche di S. Giovanni’ (St. John’s forks) |                             |
|                                 |              |                                                  |             | during St. John’s day                      |                             |
|                                 |              |                                                  |             | Craft: wood used to make many tools, like  |                             |
|                                 |              |                                                  |             | the stick to turn polenta [37]             |                             |
| Scientific name | Family            | Local names | Parts used | Uses                                                                                                                                                                                                 | References for similar uses          |
|-----------------|-------------------|-------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| *Mix*           | *Asteraceae*      | *Grugno amaro, grugno (g)* | Leaves     | Mix: young branches used to make ties [37]                                                                                                                                                    |                                       |
| *Urospermum*    | *Asteraceae*      | *Grugno amaro, grugno (g)* | Leaves     | Food: basal rosette boiled in vegetable mixtures [4, 21, 34, 39, 41], sautéed, for filling ‘crescia’ and ‘piadina’                                                                            |                                       |
| dalechampii     | (L.) Scop. ex F.W.Schmidt |             |            | Med: leaf infusion as depurative [27, 37], boiled leaves in pack to heal wounds [31]; crushed leaves in the nose to stop nose bleed [37]                                                          |                                       |
| *Urtica dioica* | *Urticaceae*      | *Urtiga (o), ortiga, erba cattiva (c), urtica (g)* | Leaves     | Food: boiled leaves as individual side dishes or in vegetable mixtures, for seasoning risotto, gnocchi, for filling ravioli, to make omelettes [4, 21, 30, 34, 41, 42, 44, 45]; *to make tea with peppermint*|                                       |
| *Valeriana*     | *Caprifoliaceae*  |             |            | Vet: leaves for feeding hens, turkeys and geese [23, 33]; to increase egg laying; *to heal digestion problem in cattle*                                                                 |                                       |
| officinalis L.  |                   |             |            | Cosm: leaf infusions to heal dandruff, to prevent hair loss, to wash oily hair [26]                                                                                                              |                                       |
| *Verbena*       | *Verbenaceae*     | *Pianta per l’ematoma (c)* | Leaves     | Sup/rel: *leaves used in good luck practice*                                                                                                                                                   |                                       |
| officinalis L.  |                   |             |            | Dye: plant cooking water used to dye fishnets green [37]                                                                                                                                     |                                       |
| *Veronica*      | *Plantaginaceae*  |             |            | Rep: leaf decoction to keep parasites away from orchard [21, 37]                                                                                                                             |                                       |
| persica Poir.   |                   |             |            | whole plant                                                                                                       **Prov:** “Essere come l’erba cattiva”                                                                                                                                                       |                                       |
| *Vicia*         | *Fabaceae*        |             |            | Med: fresh crushed leaves on bruises [25]                                                                                                                                                    |                                       |
| faba L.         |                   |             |            | Food: *raw leaves in salads*                                                                                                                                                                    |                                       |
| *Vicia*         | *Fabaceae*        |             |            | Roots Med: root macerate as sedative [37]                                                                                                                                                      |                                       |
| *Viola*         | *Violaceae*       | *Violetta (g)* |             | Sup/rel: plant is used to protect against devil’s eye                                                                                                                                          |                                       |
| *Viscum*        | *Santalaceae*     |             |            | Sup/rel: *had to say an Ave Maria if plant was trampled; plant use as amulet during trips*                                                                                                      |                                       |
| album L.        |                   |             |            | whole plants Sup/rel: *had to say an Ave Maria if plant was trampled; plant use as amulet during trips*                                                                                           |                                       |
| *Vicia*         | *Fabaceae*        |             |            | Whole plants Sup/rel: *had to say an Ave Maria if plant was trampled; plant use as amulet during trips*                                                                                         |                                       |
| *Vicia*         | *Fabaceae*        | *Vicia (o)*  |            | Med: pods used to heal warts with a particular ritual: warts marked with a bean without a pronounced embryo, saying ‘Secchete fava, secchete porro’ (dry up beans, dry up wart!), after 40 days bean was thrown into well |tell magic ritual to heal wounds in [37] |
| *Vicia*         | *Fabaceae*        |             |            | Vet: *milled beans as feed for turkeys*                                                                                                                                                        |                                       |
| sativa L.       |                   |             |            | Sup/rel: pod has predictive value [37]                                                                                                                                                          |                                       |
| *Viola*         | *Violaceae*       | *Violetta (g)* |            | Med: leaf pack on bruises [37]                                                                                                                                                                |                                       |
| alba Besser     |                   |             |            | Vet: for feeding livestock [37]                                                                                                                                                                |                                       |
| *Viola*         | *Violaceae*       | *Violetta (g)* |            | Seeds Food: milled pods to make bread [36]                                                                                                                                                      |                                       |
| *Viscum*        | *Santalaceae*     |             |            | Med: leaf infusion as anti-cough [23, 43]                                                                                                                                                       |                                       |
| album L.        |                   |             |            | Flowers Food: *raw leaves in salads* [37]                                                                                                                                                       |                                       |
| *Viscum*        | *Santalaceae*     |             |            | Flowers Food: to make jam (with apples) [48]                                                                                                                                                     |                                       |
botanical families was the one proposed by Angiosperm Phylogeny Group (2016) [20].

Analysis of the data
The uses of plants that were revealed in the interviews were grouped into 12 categories: (1) medicinal; (2) food; (3) superstitious/religious; (4) veterinary; (5) cosmetic; (6) domestic; (7) dyeing; (8) recreational; (9) repellent; (10) craft uses (of the wood); (11) sayings and proverbs (in which the plants were mentioned); and (12) miscellaneous uses.

In more detail, these uses were defined along the following lines:

(1) Medicinal uses: all uses related to treatment of human diseases, including food supplements and remedies against parasites (e.g. worms, lice).
(2) Food uses: in addition to uses strictly related to human consumption, these included the use of aromatic species and those used as coffee and tea substitutes, or for the production of other drinks.
(3) Superstitious/religious uses: these related to ritual practices integral to religion (e.g. the ‘infiorate’, production of rosaries, ‘festa del Covo’ or to popular beliefs for the protection of the person, the animals, the house, and the fields.
(4) Veterinary uses: species used to improve the health and growth of livestock [21], to defend against pests, to provide fodder [22], and to increase the productivity of livestock and poultry (e.g. production of milk and eggs).
(5) Cosmetic uses: those concerning the aesthetic care of the body (e.g. skin, teeth, hair), and those used for make-up and perfumes.
(6) Domestic uses: those for the care, cleaning and freshening of the home, and plants used as fuel, to preserve foods, and for production of light.
(7) Dyeing uses: plants that were used to dye fabrics or work tools, such as for the nets used by the fishermen.
(8) Recreational uses: those that were used for the production of toys and for hobbies.
(9) Repellent uses: the species that were used to free environments from insects, rodents, and other vermin.
(10) Craft uses of the wood: artisan uses of the wood from the plants, such as for the production of tools, furniture, poles (e.g. handles for brooms), and work tools.
(11) Sayings and proverbs that mentioned the plants: situations in which the plants had become part of common usage for sayings and proverbs.
(12) Miscellaneous uses: all those various uses that did not fall into the previous categories, such as supports for plants, production of rope and vegetable fibre, decorative (floral) uses (excluding domestic ones), and for smoking and ink production, as examples.

Choice of the reference bibliography
Various ethnobotanical studies were used as a reference to compare the uses defined in the three study areas in the present study. These articles concerned investigations

Table 1 The species of ethnobotanical interest in the Ancona district (Continued)

| Scientific name | Family | Local names | Parts used | Uses | References for similar uses |
|-----------------|--------|-------------|------------|------|-----------------------------|
| Vitis vinifera L. | Vitaceae | leaves | Med: leaf decoction to heal chilblains [27, 37], to heal diarrhoea; leaf pack as eye decongestant [36] | Fruits | Mix: dried leaves as tobacco substitute [37] |
| Zea mays L. | Poaceae | Granturco | Leaves | Dom: dried leaves to fill mattresses [4, 23] | Fruits | Med: fruit eaten as depurative |

The table lists all of the ethnobotanical uses found for the three survey areas of the Ancona district. The information given includes name of the species, botanical family, local names, parts used, and types of use. The ‘references for similar use’ column reports similar use or the same use for a different part of the plant. The new uses are marked in bold, while the new food uses for the Marche region are in bold italic. In the column ‘local name’, o indicates the local name in the Osimo area, c in the Conero area, and g in the Gola della Rossa–Frasassi area.

Med, medicinal uses; Food, food uses; Vet, veterinary uses; Cosm, cosmetic uses; Sup/rel, superstitious/religious uses; Dye, dyeing uses; Craft, craft uses; Recr, recreational uses; Dom, domestic uses; Prov, local sayings and proverbs; Rep, repellent uses; Mix, miscellaneous uses
conducted in the Marche region [23–27], and also in other areas in Central Italy [4, 28–34], and in the rest of Italy [21, 22, 35–45], and in Europe [5, 46–48].

Results and discussion
Table 1 gives the details of the information collected, in terms of the scientific names of the species, the local names (where known), the botanical families, and the categories of use, with explanations for the modes of use. Table 1 gives the new uses in bold text, and the new food uses for the Marche region are underlined. Moreover, the bibliographic references are given for each species, with the same or similar uses indicated, and with mention of the same parts of the plants or the different parts used. The focus here instead is only on the new uses, or those that are particularly unusual.

The flora of ethnobotanical interest in the Ancona district
In total, 195 species were recorded, as both herbaceous and woody plants for which there was at least one use of ethnobotanical interest. Of these, 184 are wild plants and 11 are cultivated, although used for purposes other than those for which they were cultivated. These 195 species belong to 60 families, among which the most represented were Asteraceae (13.3%), followed by Lamiaceae (7.2%), Fabaceae and Rosaceae (6.7%), and Brassicaceae (5.1%).

The informants
In total, 120 people were interviewed (30 in the Mount Conero area, 55 in the Osimo area, 35 in the Gola della Rossa–Frasassi area): 82 were women and 38 were men, with ages 32–97 years, and a mean age overall of 75 years. Of these, 65% had only attended primary school, 13% completed lower secondary school, 18% secondary school, and 4% had a university degree. For their occupations at the time of the interview or before they retired, 25% were farmers, 25% craftsmen, 16% housewives, and 15% factory workers.

Who gathers the plants
The data concerning the people who were involved in the collection of the plants were only recorded for the localities of Osimo and Gola della Rossa–Frasassi. Here, although the distributions between women, men, and children varied (Fig. 2), the gathering of the plants for the medicinal, food, superstitious/religious, domestic, and dyeing uses was the prerogative of women, while that for the wood and fruit were the task of the men. Generally, the children were mainly involved in the collection of plants for recreational uses, and sometimes for the fruit.

The oldest informant reported some particularities for the gathering of some species in the Conero area: *Matricaria chamomilla* L. could not be gathered by young boys; and those who collected *Salvia officinalis* L. had to wear a white tunic and could not use iron tools, which would have dishonoured the sacredness of the plants.

The uses of the species of ethnobotanical interest
With regards to the wild plant species used in these three areas of Ancona district, the analysis shows that the species with the greatest number of categories of use here was *Sambucus nigra* L. (i.e. its use was recorded for all 12 of the categories): the flowers had medicinal and food purposes; the fruit had dyeing uses and were also used in the veterinary sector (‘to revive the colour of the tails of the cows to sell’) and to produce ink; the wood was used to produce tools; and the entire plant had superstitious/religious uses, to name just a few. Among the other species with the greatest numbers of categories of use, there were *Matricaria chamomilla* L., *Salvia officinalis* L., *Urtica dioica* L., *Papaver roheas* L., and *Rosa canina* L. (with eight categories of use each). The categories of uses and relative percentages of species are listed in Fig. 3.

Medicinal uses
Of the 195 species considered, 122 had at least one medicinal use. The most used parts of the plants were the leaves, followed by the flowers (Fig. 4).

The most common methods of medicinal use were infusions and decoctions, with the use of parts of the fresh plants. The most mentioned diseases were those that affected the skin and the gastrointestinal system, followed by those associated with the urogenital and gynaecological, respiratory, nervous, and cardiovascular systems. The species known for the same medicinal uses in all three areas were *Borago officinalis* L. against coughs; *Elymus repens* (L.) Gould. as a depurative; *Asparagus acutifolius* L. as a diuretic; *Ficus carica* L. to heal calluses; and *Malva sylvestris* L. as a laxative. The species with the highest number of different medicinal uses or used for the treatment of several different diseases were *Malva sylvestris* L. (12 different uses), *Foeniculum vulgare* Mill. (8 different uses), *Matricaria chamomilla* L., *Olea europaea* L., and *Parietaria officinalis* L. (6 different uses each).

The new uses that did not correspond to those in the literature included species used as depuratives and diuretics, like *Lunaria annua* L. leaves, *Salsola soda* L. leaves, *Galium aparine* L. leaves and stems, and *Sorbus domestica* L. fruit (as a blood depurative). The species used to assist digestion included leaves of *Agrimonia eupatoria* L., *Dipotaxis erucoides* (L.) DC, and *Dipotaxis tenuifolia* (L.) DC. The species used as tonics were *Medicago sativa* L. leaves and *Rumex obtusifolius* L.
roots. Other new uses were described for *Cruciata laevipes* Opiz leaves to heal intestinal obstructions, *Elymus repens* (L.) Gould to heal nose bleeds, *Hedysarum coronarium* L. leaves as a galactagogue (to promote lactation), and *Jasminum officinale* L. flowers to heal coughs. In terms of skin diseases, the new uses referred to *Medicago lupulina* L. leaves and flowers as an infusion as a lenitive and emollient, *Rosa canina* L. fresh leaves as an infusion to heal wounds, as a cicatriser, *Olea europaea* L. hot oil to heal calluses, and *Crataegus monogyna* Jacq dry fruit heated in a small bag and used to heal rheumatic pain. An unusual way to heal arthritic pain was to put crushed leaves of *Ficaria verna* Huds. on the skin where a blister formed and then had to be pierced. Guerrera [37] also referred the use of *F. verna* as a “blistering plant”.

Some uses were instead contradictory with those given in the literature, such as *Vitis vinifera* L. leaves as a decoction that was previously cited as a laxative [37], while in the Gola della Rossa–Frasassi area this was used to
heal diarrhoea. Other new uses were similar to those previously cited in the literature, but did not necessarily fully correspond to them, with the details given in Table 1.

Food uses

There were 119 species with food uses, some of which were used in all three study areas for the same use: Asparagus acutifolius L. in omelettes; Cichorium intybus L. as leaves in boiled vegetable mixtures; Foeniculum vulgare Mill. to flavour meat, fish, and olives; Plantago lanceolata L. in boiled or fresh vegetable mixtures; Rosa canina L. fruit in jams, Salvia officinalis L. to flavour meats; and Urtica dioica L. for omelettes and boiled vegetable mixtures, or for seasoning risotto. Among these, Asparagus acutifolius L., Cichorium intybus L., Foeniculum vulgare Mill., and Urtica dioica L. were the most frequently cited species for food uses across the various communities in Italy [40]. Borago officinalis L. and Urtica dioica L. were the most versatile in the kitchen, with seven different preparations.

The most used parts were leaves, fruit, and flowers (Fig. 5), and Foeniculum vulgare Mill. was the species with the highest number of parts used.

Most of the species (i.e. 50 species) were boiled in vegetable mixtures, sautéed, and served as a side dish, to provide the so-called ‘foje’, which included Cichorium intybus L., Malva sylvestris L., Papaver rhoeas L., Helminthotheca echioides (L.) Holub., Reichardia picroides (L.) Roth, and Taraxacum campylodes G. E. Haglund Plantago lanceolata L.. In some cases, these also included Capsella bursa pastoris (L.) Medik., Crepis vesicaria L., Echium vulgare L., Hedysarum coronarium L., Plantago major L., Rumex obtusifolius L., Silene vulgaris (Moench) Garcke, Sonchus arvensis L., Sonchus oleraceus (L.) L., and Urospermum dalechampii (L.) Scop. ex F. W. Schmidt.

Across the three study areas, Crithmum maritimum L. was only present on the rocky coasts of Mount Conero, where it was widely known: its food use as a “very delicious side dish” has already been documented by Guarnera [24]. The new uses that did not correspond to the literature consulted included some plants that were boiled in vegetable mixtures and served as side dishes, including Lunaria annua L. and Misopates orontium (L.) Raf., which was also used in fresh salads. The species that showed new uses in salads were Veronica persica Poir, and rhizomes of Cynodon dactylon (L.) Pers. as raw in salads (as collected for the Gola della Rossa–Frasassi area); these uses have only been referred to for Spain in famine periods [5].

Other new uses included fried flowers of Achillea collina (Beckser ex Rchb.f.) Heimerl in salted batter. In the literature, the use of this plant as fritters was reported in Sardinia [36], the use of flowers of A. ptarmica L. in salads for the Bologna area [42], leaves of Agrimonia eupatoria L. for filling fresh pasta, Calendula officinalis L. flowers in risotto, fruit of Celtis australis L. to flavour grappa, flowers of Convolulus arvensis L. sucked as a snack, seeds of Elymus repens (L.) Gould and Linum usitatissimum L. for making bread, fruit of Passiflora caerulea L. eaten as fresh fruit, seeds of Sinapis alba L. to
flavour pickled peaches, flowers of *Tanacetum parthenium* (L.) Sch. Bip. and *Satureja montana* L. for flavouring vinegar, flowers of *Trifolium repens* L. to flavour bread, leaves of *Urtica dioica* L. to make a tea, and *Mentha* sp., and *Malva sylvestris* L. flowers to make a refreshing drink. The pickling of leaves of *Cichorium intybus* L. (collected for Conero area) was referred to only the Mediterranean area for Cyprus [48], with roasted roots of *Sonchus asper* (L.) Hill. as a surrogate for coffee.

In addition to the new uses that are written in bold in Table 1, the new foods for the Marche region are underlined.

**Superstitious/religious uses**

Across the three study areas, 61 species had one or more superstitious/religious property. Many uses were already known in the literature for the Marche region and for the rest of Italy. However, other uses were not well described, and so it was difficult to find any correspondence with the literature.

Various uses were connected with the festivities of San Giovanni on 24 June, among which many were new. The preparation of ‘Acqua di San Giovanni’ (St. John’s water) was frequently cited, and it consisted of putting some vegetable parts and flowers in a basin of water, which was then left outside during the night of St. John (between 23 and 24 June). This water was then used to wash the face the following morning (with some reports indicating before dawn), to be free from the evil eye. Further, according to some informants in the area of the Gola della Rossa–Frasassi, the same water was thrown in a cross along the stairs and in the rooms. The species used were flowers of *Hypericum perforatum* L., *Robina pseudoacacia* L., *Lavandula* sp., *Malva sylvestris* L., *Rosa canina* L., and *Spartium junceum* L.; leaves of *Laurus nobilis* L. and *Juglans regia* L.; shoots of *Ficus carica* L.; and as a new use, berries of *Juniperus oxycedrus* L. Some of the informants indicated the use of four ears of *Triticum turgidum* L. placed above the St. John’s water, and this was also a use never reported before. Other rituals not previously described for the feast of St. John for the area of the Gola della Rossa–Frasassi consisted of preparing the so-called ‘forks of St. John’, with branches of *Ulmus minor* L. that were cut and stripped of the bark to be formed like the forks used with the straw, which were then placed outside the door as a good omen for the wheat harvest. Another new use, and for the same area, was to make a cross by tying some branches of *Ficus carica* L. together that were put outside the door on the night of St. John, to protect from witches. Stems of *Artemisia vulgaris* L., *Ruta graveolens* L., *Rosmarinus officinalis* L., and *Lavandula* sp. were put into the pockets or under the pillow to protect against witches during the night of St. John. The stem of *Artemisia vulgaris* L. provided protection when travelling.

Some flowers were used in the so-called infiorate, where drawings were designed on the ground along the streets where the Procession for Corpus Domini passed. The species used included *Bellis perennis* L., *Calendula officinalis* L., *Lavandula* spp., *Robinia pseudoacacia* L., *Rosa canina* L., *Wisteria sinensis* (Sims) Sweet, and
Hedysarum coronarium L., with the new use recorded for \textit{Cota tinctoria} L. J.Gay, and \textit{Matricaria chamomilla} L.. \textit{Triticum turgidum} L. was used (and indeed is still used) to create allegorical waggons and decorations for the ‘\textit{Festa del covo},’ a religious celebration that is held in August in the Osimo area.

Some of the other new uses with no correspondence in the literature consulted included to keep the aerial parts of \textit{Achillea collina} (Becker ex Rchb.f.) Heimerl in the pockets to protect against haemorrhoids. Conversely, plants of \textit{Arum italicum} Mill. that grew near the house were weeded out to remove them, because the spots on the leaves were correlated to the blood of Jesus and the plant was believed to bring bad luck. Furthermore, some branches of \textit{Olea europaea} L. were held in the hand to find lost things, with a prayer to Sant’Antonio (‘\textit{Sacre Sponzole}’) recited. Also, a large stock of \textit{Vitis vinifera} L. wood was burnt on the fire on Christmas Eve, and then allowed to burn slowly every day until 6 January, with the still-burning logs placed in the vineyard while reciting the phrase ‘\textit{Vita mia non te 'rrugà, tho portato u ceppu de Natà}’ (‘Oh my grapevine, don’t perish, I have brought you the Christmas log’).

The religious uses also included the production of rosaries, and the new plant use here was for seeds of \textit{Robinia pseudoacacia} L.

\textbf{Veterinary uses}

Across the three study areas, 53 species had a veterinary use. Among the species that were administered as feed, new uses included \textit{Ailanthus altissima} (Mill.) Swingle leaves, for feeding silkworms; leaves of \textit{Celtis australis} L., for cattle; \textit{Medicago lupulina} L., \textit{Myosotis arvensis} (L.) Hill and \textit{Silene latifolia} subsp. \textit{alba} (Mill.) Greuter and Burdet leaves for various animals; \textit{Populus alba} L. dried leaves as winter feed for rabbits and sheep; and \textit{Rosa canina} L. fruit to feed hens.

Other species were administered as curative feed, with the new uses including \textit{Cichorium intybus} L. leaves, to heal intestinal worms in rabbits; and \textit{Hypochoeris chrysophorus} L. roots, as feed for pigs and leaves for cattle, as a galactagogue. An unusual use of the bulb \textit{Allium neapolitanum} Cirillo, \textit{Morus alba} L., and \textit{Passiflora caerulea} L. flowers in fresh floral decorations, and \textit{Alosia cirtiodora} Palau., \textit{Amaranthus retroflexus} L., and \textit{Nigella damascena} L. flowers and \textit{Lunaria annua} L. stems with siliquae (dried seed pods) as dried floral decorations. Then there were the species used to perfume rooms and drawers, with the new and particular use reported for \textit{Rosa canina} L., the petals of which were infused in water together with cloves and salt, to make a solution that was sprayed over the hot stove to spread the vapour through the kitchen and freshen it. \textit{Matricaria chamomilla} L. flowers were also used to perfume drawers.

Other domestic uses concerned those for producing light, for detergents, and to preserve apples.

\textbf{Dyeing uses}

Dyeing uses were reported for 17 species. The new uses that did not correspond to any in the literature consulted included \textit{Cichorium intybus} L., \textit{Salvia verbenaca} L., and \textit{Stachys officinalis} (L.) Trevisan to dye clothes yellow; \textit{Cruciata laevipes} Opliz roots as a red dye; \textit{Geranium dissectum} L. leaves as a brown dye; and \textit{Plantago lanceolata} L. leaves as a green dye. The cooking water of \textit{Asparagus acutifolius} L. shoots was used to dye fishing nets green (reported for the Conero area).

\textbf{Recreational uses}

In the three areas, 17 species had recreational uses. The new uses that did not correspond to any in the literature

\textit{L.}

\textit{Alnus pseudoacacia}

\textit{ing the phrase}

\textit{the still-burning logs placed in the vineyard while recit-

\textit{allowed to burn slowly every day until 6 January, with}

\textit{wood was burnt on the fire on Christmas Eve, and then}

\textit{allowed to burn slowly every day until 6 January, with}

\textit{the still-burning logs placed in the vineyard while recit-

\textit{the phrase ‘\textit{Vita mia non te 'rrugà, tho portato u ceppu de Natà}’ (‘Oh my grapevine, don’t perish, I have}

\textit{brought you the Christmas log’).

\textit{The religious uses also included the production of ros-

\textit{aries, and the new plant use here was for seeds of \textit{Rob-

\textit{inia pseudoacacia} L.}

\textbf{Veterinary uses}

\textit{Across the three study areas, 53 species had a veterinary use. Among the species that were administered as feed, new uses included \textit{Ailanthus altissima} (Mill.) Swingle leaves, for feeding silkworms; leaves of \textit{Celtis australis} L., for cattle; \textit{Medicago lupulina} L., \textit{Myosotis arvensis} (L.) Hill and \textit{Silene latifolia} subsp. \textit{alba} (Mill.) Greuter and Burdet leaves for various animals; \textit{Populus alba} L. dried leaves as winter feed for rabbits and sheep; and \textit{Rosa canina} L. fruit to feed hens.

Other species were administered as curative feed, with the new uses including \textit{Cichorium intybus} L. leaves, to heal intestinal worms in rabbits; and \textit{Hypochoeris chrysophorus} L. roots, as feed for pigs and leaves for cattle, as a galactagogue. An unusual use of the bulb \textit{Allium neapolitanum} Cirillo, \textit{Morus alba} L., and \textit{Passiflora caerulea} L. flowers in fresh floral decorations, and \textit{Alosia cirtiodora} Palau., \textit{Amaranthus retroflexus} L., and \textit{Nigella damascena} L. flowers and \textit{Lunaria annua} L. stems with siliquae (dried seed pods) as dried floral decorations. Then there were the species used to perfume rooms and drawers, with the new and particular use reported for \textit{Rosa canina} L., the petals of which were infused in water together with cloves and salt, to make a solution that was sprayed over the hot stove to spread the vapour through the kitchen and freshen it. \textit{Matricaria chamomilla} L. flowers were also used to perfume drawers.

Other domestic uses concerned those for producing light, for detergents, and to preserve apples.

\textbf{Dyeing uses}

Dyeing uses were reported for 17 species. The new uses that did not correspond to any in the literature consulted included \textit{Cichorium intybus} L., \textit{Salvia verbenaca} L., and \textit{Stachys officinalis} (L.) Trevisan to dye clothes yellow; \textit{Cruciata laevipes} Opliz roots as a red dye; \textit{Geranium dissectum} L. leaves as a brown dye; and \textit{Plantago lanceolata} L. leaves as a green dye. The cooking water of \textit{Asparagus acutifolius} L. shoots was used to dye fishing nets green (reported for the Conero area).

\textbf{Recreational uses}

In the three areas, 17 species had recreational uses. The new uses that did not correspond to any in the literature
consulted included ears of *Elymus repens* (L.) Gould., which children used to detach them one by one to see if a desire would come true, and acorns of *Quercus* sp., which were used for dolls’ eyes, with the galls used for marbles. Leaves of *Trifolium pratense* L. were used to guess where a storm was coming from, which depended on the direction in which they were oriented.

**Repellent uses**

Fifteen species were cited in the three areas for their repellent uses against parasites or other damaging pests, to prevent harm coming to garden plants, or to the house, the granaries, and other stored food. The new uses here that did not correspond to others in the literature consulted included bulbs of *Allium neapolitanum* Cirillo and leaves of *Artemisia vulgaris* L., which were macerated in water to keep parasites away from the orchards; and leaves of *Melissa officinalis* L. and *Thymus vulgaris* L. put in the drawers to protect against moths. A very particular use was for some plants of *Pastinaca sativa* L. subsp. *urens* (Req. ex Godr.) Celak, that were left to grow around the orchards to keep thieves away, on the basis of their urticant (i.e. itching, stinging) effects.

**Craft uses of wood**

Ten species were cited where the wood was used to make tools for agricultural, kitchen and other work activities, and for various objects for the house and the stables, and for furniture. Among the most useful woods there were *Acer campestre* L., *Ostrya carpinifolia* Scop. and *Quercus* sp., while the use of *Ailanthus altissima* (Mill.) Swingle as wood for making various tools was new, as also for *Cornus mas* L. for making boats. Particular uses included *Arundo donax* L. stems to make ‘mazzarello’, a tool to support knitting pins, and *Ulmus minor* Mill. as wood to make the stick used to turn polenta.

**Sayings and proverbs**

Most proverbs and idioms in which plants or parts of plants were mentioned referred to events in the agricultural life, such as the crop phases and the seasons of the year. These included, for example, ‘(Lots of figs, little wheat’: in a year where a lot of figs were produced, there would be low production of wheat). Other cases might associate a person’s behaviour with the characteristics of a given plant, such as ‘Essere come l’erba cattiva’ (‘To be like bad grass’), which actually referred to the nettle, which was known as ‘bad grass’ locally due to its sting. In other cases, the proverbs still summarise the uses or qualities of a plant, such as ‘La ruta fa veni la vista acuta’ (‘Rue improves the vision’), which refers to the use of the plant to improve the eyesight.

**Miscellaneous uses**

Twenty-nine species were classified as having miscellaneous uses, which included those that do not belong to the other categories defined here. Some of these related to species that were used to make various ropes or cords, for agricultural use and for the home. For these uses, there were *Ceratonia siliqua* L. and *Polygonum aviculare* L. stems, and *Robinia pseudoacacia* L. roots. New or unusual uses were also seen for the resin of *Pinus pinea* L. to produce turpentine and for the plants that were used for wedding bouquets, such as the flowers of *Calystegia sepium* (L.) R. Br. and *Lunaria annua* L., while the flowers of *Calepina irregularis* (Ace) Thell and *Robinia pseudoacacia* L. were used to make the bride’s bouquet.

The other uses included in this category were the species where leaves were used as tobacco substitutes, for curdling milk and to produce ink.

**Local names**

Some of the local names were different across these three study areas. For example, *Plantago lanceolata* L. was called ‘lingua di cane’ (dog’s tongue) and ‘orecchie di pecora’ (sheep’s ears) in Osimo, ‘orecchie d’asino’ (donkey’s ears) and ‘orecchione’ (little ears) in the Mount Conero area, and ‘ORECCHIE di pecora’ (sheep’s ears) and ‘centonervi’ (a hundred nerves) in the Gola della Rossa–Frasassi area.

Sometimes, the same local name was indicated for different species and genera, such as ‘grugno’ for *Cichorium intybus* L., *Helminthotheca echioideus* (L.) Holub and *Urospermum dalechampii* (L.) Scop. ex F.W.Schmidt; and ‘spergna’ for *Helminthotheca echioideus* (L.) Holub and *Picris hieracioides* Sibth. and Sm.

The local names of the plants are given in Table 1.

**Conclusions**

The surveys carried out in these three study areas in the Ancona district led to the identification of ethnobotanical uses for 195 species, 184 of which were wild and 11 were cultivated. The three areas were different in terms of their economic and phytogeographic characteristics, but all of these areas were united in that they have suffered depopulation of the countryside since the 1960s, as for the rest of the Marche region and the whole of Central Italy in general. The consequence of this has been the disintegration of rural society and the loss of traditional local knowledge.

We believe that our survey can increase our present-day knowledge of the traditional local uses of plants, which now allows us to preserve this knowledge, not only in terms of medicinal and food uses, but also for ethnobotanical aspects as a whole. Some of the uses recorded here are common to all three survey areas and are also common to other areas of Marche and Central
Italy, while others appear to be particularly unusual, and even new, with no previous mention of them in the literature.

The plants that were cited for medicinal uses were most numerous. *Malva sylvestris* L., *Foeniculum vulgare* Mill., *Matricaria chamomilla* L., *Olea europaea* L., and *Parietaria officinalis* L. were best known for their curative uses across the three study areas, which is in line with the rest of Italy. However, the medicinal uses of 19 species were new.

For food uses, those most noted were *Asparagus acutifolius* L., *Cichorium intybus* L., *Foeniculum vulgare* Mill., *Plantago lanceolata* L., *Rosa canina* L., *Salvia officinalis* L., and *Urtica dioica* L. Many food uses were similar to those mentioned in the literature, while among the most unusual here was the use of raw *Cynodon dactylon* (L.) Pers. in salads (for the Gola della Rossa–Frasassi area), a use that has only been reported for Spain in periods of famine [5].

For the veterinary uses of plants, the most unusual was that to 'revive' the tails of cows that were due to go to the market, to make them brighter, which was provided by an infusion from the fruit of *Sambucus nigra* L.

The most diffuse superstitious/religious uses were those of St. John’s water and the infiorate. The high number of new superstitious/religious uses arises because only a few of the literature references consulted have referred to this type of use. Among the most significant new and unusual uses were the branches of *Ulmus minor* L. and *Ficus carica* L. that were used to make the so-called forks of St. John and the crosses to hang outside the house during the night of St. John, respectively.

Among the other new and unusual uses were the cosmetic use of the *Pinus pinea* L. pitch to make a hair-spray, the domestic use of the petals of *Rosa canina* L. to produce a water with which to freshen the house, and the repellent use of the plants of *Pastinaca sativa* L. subsp. *urens* (Req. ex Godr.) Celak. to protect the garden from thieves.

In conclusion, we believe that the large and varied amount of data collected here is particularly useful for its contribution to the knowledge of how plants were used by the rural societies that were widespread throughout the Marche region until the second half of the 1960s. The uses of these plants were necessary to promote the self-sufficiency of these populations in terms of their domestic and agricultural practices, and their homecare, personal care and animal care, and for their own sustenance. At the same time, we would emphasise the need to identify more than one area within even just the Marche region (here as coastal, hilly, mountainous) to provide a more complete view of the traditional knowledge that was spread throughout the territory and to allow comparisons between such areas.

Acknowledgements
The authors would like to thank those who contributed to the data collection for these surveys, and in particular S. Massaccese, C. Serini and K. Zajko, and all of the informants who agreed to take part in the survey.

Funding
Not applicable.

Availability of data and materials
All data generated or analysed during this study are included in this article and its Supplementary Material Table. Voucher specimens are stored at the Herbarium Anconitanum (ANC) of the Department of Agricultural, Food and Environmental Sciences of the Polytechnic University of Marche (UNIVPM).

Authors’ contributions
The authors contributed equally to this work. All authors have read and approved the final manuscript.

Ethics approval and consent to participate
Prior oral informed consent was obtained from all of the study participants. Permission of the Ethical Committee was not required. Permission was not required to collect the voucher specimens, and no plant samples were collected in the areas under the protection of the Regional Park of Conero and the Regional Park of Gola della Rossa–Frasassi.

Consent for publication
Not applicable.

Competing interests
The authors declare that they have no competing interests.

Publisher’s Note
Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Received: 27 July 2018 Accepted: 21 January 2019
Published online: 05 February 2019

References
1. Pongetti C. L’eredità mezzadrile nell’età della globalizzazione. Una sfida per i sistemi locali. In: Adornato F, Cegna A, editors. Le Marche nella mezzadria. Un grande futuro dietro le spalle. Macerata: Quodlibet; 2013.
2. Anselmi S. Agricoltura e vita quotidiana nelle Marche mezzadrili. In: Proposte e ricerche, vol. 8. Urbino: Il lavoro editoriale; 1982. p. 189–98.
3. Anselmi S. L’agricoltura marchigiana nella dimensione storica. In: Rivista di storia dell’agricoltura. Accademia Economico-Agraria dei Georgofili, Firenze, vol. 2, anno XXVI, 1986, p. 1–103. http://nsaistoriagricultura.it/scheda.asp?IDF=83&IDS=3&IDP=1.
4. Signorini MA, Lombardini C, Bruschi P, Vívona L. Conoscenze etnobotaniche e saperi tradizionali nel territorio di San Miniato (Pisa). Atti Soc Bot Sci Nat Mem Ser B. 2007;11:465–83.
5. Luczaj L, Pieroni A, Tardio J, Pardo-de-Santayana M, Sivukand R, Svanberg I, Kalle R. Wild food plant use in 21st century Europe, the disappearance of old traditions and the search for new cuisines involving wild edibles. Acta Soc Botaniceorum Pol. 2012;81(4):359–70.
6. Biondi E, Baldoni M. Natura e ambiente nella provincia di Ancona: guida alla conoscenza e alla conservazione del territorio. Provincia di Ancona, Assessorato alla tutela dell’Ambiente. Ancona: TecnoPrint s.r.l.; 1996.
7. Fiacchini D. Guida alle aree di interesse naturalistico della Provincia di Ancona. Provincia di Ancona, Assessorato Cultura, Turismo, Parchi e Aree Protette-Ambiente, Tutela del Patrimonio Faunistico e Ittico; 2007.
8. Rivas-Martinez S, Sánchez-Mata D, Costa M. North American boreal and western temperate forest vegetation. Itineraria Geobotanica. 1999;12:316.
9. Biondi E, Cubellini L, Pinzi M, Caraveo-S. The vascular flora of Conero regional Nature Park (Marche, Central Italy). Flora Medit. 2012;22:67–167.
10. Parco Naturale Regionale del Conero - Variante generale al Piano del Parco del Conero, approvato con DACR Marche n.154 del 2/2/2010 e n. 156 del 8/2/2010.
11. Segale A. Piano Agricolo del Parco del Conero. Università degli studi di Ancona, Dipartimento di Biotecnologie Agrarie ed Ambientali. 2000.
